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FOREWORD

By J. Russell Smith,

Editor in charge of this volume.

Tipsy soldiers sacking a town overload themselves with loot. They fairly wallow in a surplus of property, they trample it under foot. Similarly the people of the United States wallow in opportunity for comfort and riches. Yet the bread line stands, the charities are overworked at the same time that unemployment pinches millions and rots the staying qualities of our erstwhile workers.

This situation becomes the more ironic, the more belittling to man with all his boasts, when we stop to consider the possibilities in which we live. Mr. Keir (see page 1) shows that in resources we are actually several times as well off per man as the richer of our European brethren were before the war began; and resources are the stuff that wealth is made of. We have large room for increased production through the improvement of the public health and prolongation of life (see Norton, page 29). It is little trouble for the corn club boys to triple or quadruple the national average yield of corn, that king of crops; agricultural and technical education can easily double and more than double our productive ability (see True, page 51). Dr. Spillman shows how the efficiency movement (see page 65) easily doubles output on the farm with little or no increase of effort. Mr. Gilbreth, the pioneer efficiency engineer in the field of motion study, shows the easy way to a 100 per cent increase in output in vast industrial fields by merely taking thought (see page 96). The wonders of scientific management in doubling and tripling output are too well known to need rehearsing here but it is a fact that it is rarely used as yet. American industry is in parts surprisingly inefficient as secretary Redfield has recently shown. Mr. Martin (see page 77) shows how the scientific management idea is being applied with great savings and greater possibilities in that wasteful chaos we call distribution.

Altogether it is not difficult to figure up a total possibility of 300 or 400 per cent easy increase in the national production by the

general application of methods now well known and practiced by thousands. The articles on research (see Waite, page 40, and Whitney, page 86) show that this movement has but begun. Why should children work when men stand idle? Why should carpets and shoes and chairs be scarce (*i. e.* wages low, see Nearing, page 111) when we can make three times as many of them as we do?

The environmental origin of things is very familiar to the geographer, but Mr. Walsh carries it on by making a very forcible statement of the wage environment as a creator of ideas (see page 104).

Here we stand with reasonable possibilities of 300 or 400 per cent increase in national wealth but we are now not even fully using our equipment at the low efficiencies that we at present tolerate. The article by Mr. Reitzel on page 125 reveals the shocking unemployment of a normal year like 1912. We have in our midst the final lunacy of the ages—an industrial depression—unused resources, piles of raw materials lying inert, rows of fully equipped factories with their machines standing silent and idle, thousands of men and women hungry, poor, half naked, clamoring merely for the chance to work and at rates that are grossly inadequate (see Nearing, page 111). That is the stuff that changes are made of—unwise changes perhaps. To those who can read, there is a hand writing on the wall.

I am not blaming anyone for all this. As nearly as I can discern there is not very much blame to be dispensed. It has just happened. The facts are that we have made industrial changes faster than we could adjust them, we have made them so fast that civilization has an awful stomachache from undigested improvements. The alarming fact is that when a pain passes a certain point a person will take anything that is offered.

That world paralysis, the industrial depression, should, so long as it remains upon the earth, produce a sense of disgrace in every economist, every legislator and every captain of industry. What causes the depression? I confess to shame. I should be greatly humiliated if the man from the moon asked me about it.

Dr. Patterson's paper (see page 133) gives a very valuable summary of leading theories for the cause of financial depression. Our great ignorance of this subject is shown by this variance of our notions, a variance which serves forcibly to illustrate the gravity of the problem.

While this darkness continues we have little chance of final solu-

tions, but we must do something and the public employment bureau is a natural first aid (see Hodges, page 165, and Barnes, page 185) but it *makes* no jobs except for those who run it. More can be done by the development of an employer's sense of responsibility so that he looks at his workers as people whom he wants to help to a full year's work rather than to having them hang round partly unemployed, so that he can get them on demand (see Cooke, page 194). Let us hope for the early arrival of the day when no large employer of labor will find it possible to say as one said last month—

"Mr. Smith, this social uplift is the silliest thing I know." It is probably true that Mr. Pfahler's profit-sharing plan (see page 200) will do much to increase this feeling of solidarity. Vast things could result if 10,000 men of influence should become mildly obsessed with the idea that regularity of industry in the United States was worth working for and sacrificing for. If it could only become the style.

This problem, the depression with its unemployment, seems to come with increasing frequency and is a problem of such gravity that it is but natural that many, like Mr. Guggenheim of the Smelter Trust, should in dismay turn to the government for their solution (see page 209). Admittedly we have trifled with the problem this time; from the national administration down we have done little more than develop soup kitchen expertness and not enough of that. This fact makes all the more important an examination at this time of the only two claims that pretend to cope with the whole problem, the only "panaceas" in sight. On pages 148 and 157 two of the greatest enemies in all philosophy glare at each other—Mr. Hall, the individualist, who will cure it all by breaking up the land monopoly and giving individual initiative a real chance; and Mr. Spargo, the collectivist, who says that if the right to work can only be realized through the assumption of the control of industry by the state, that step will be taken. Who will say that both or which one is wrong in his prediction?

The collectivist, Mr. Spargo, further points out that production is not organized primarily for the purpose of supplying needs, but for the purpose of affording profit to investors. In this change from profit to service lies the millenial revolution that he would have.

As to how this reorganization from profit basis to service basis is

to be made, this paper, as is the case with most collectivist papers, is as bare of method as are the minutes of that famous mouse meeting where they resolved to bell the cat. But the really important point is that the collectivist does not have to furnish the method. It has been done for him. The world's greatest promoter of socialism died the other day in this city leaving the method behind him. Frederick W. Taylor, the world-famed exponent of scientific management, has done more for socialism than Karl Marx or any school of theorists. The theorists merely painted a wish. Mr. Taylor, who was anything but a socialist, showed them how to get it. He projected into men's affairs with great emphasis and convincing evidence the idea of standards. The illness of a man of national reputation prevented our having a paper on this subject, but recent happenings show the point. Last fall at the Mayors' Conference in Philadelphia, the quarrel between the champions of public ownership and of private ownership of municipal enterprises, centered upon the point of efficiency. Here is where Mr. Taylor contributed. Ten years ago the critic used to tell the man on the inside that he was inefficient. The man inside would say "you're a liar"; the man outside would say "you're another." They might perhaps have a fight, but the subject of the controversy was illumined by no display of facts. There were none worth mentioning, only *opinions.* Since the standardization idea has come, the critic announces that the electric company is inefficient *because* it uses one-half pound more coal per horse-power hour than the standards of good engineering practice permit. Since this is a matter of record all the electric company can do is to squirm, and try to show good reasons why it should be different from the standard. The significance of this change is difficult to appreciate.

Granted a half-way decent desire for efficiency in works management, it is within reach as never before and the socialist propaganda already rich in grievances is now enriched by the greatest tool ever placed in its hand for achievement.

Just as an illustration of Mr. Spargo's point about an industrial life dependent on enterprises run for service rather than for profit, I call attention to the railroad situation. I do not know what causes depressions but I do know that they are characterized by an almost complete cessation of the making of equipment. Prosperity consists of a heavy period of equipment when many producers enlarge

their capacity. We have no normal condition. Now suppose the United States government owned all the railroads and that the whole weight of governments was thrown into the problem of keeping industry going smoothly. All government equipping would be rushed in dull times and starved as far as possible in rush times. Certainly this would be a great steadier, but cannot we obtain it by other means? If not—I merely call attention to the socialist vote in the United States and Frederick W. Taylor's contribution—*standards*. I think that we have here a new call to public duty on the part of those who have power.

Collectivism may come on apace as Herbert Spencer predicted or individualism may clean house so that it will not be necessary. In either case we are faced with the necessity of making a host of readjustments if we are to adequately utilize our opportunities. When the general counsel of the Pennsylvania Railroad joins Mr. Guggenheim and the professors in demanding more government regulation of industry we may be assured that it is coming and Dr. Young (see page 212) points to a much less harassing method than we have yet had. As we tinker our machine it should never be forgot that money is the mechanism of exchange—an indispensable machine of the greatest delicacy (see Conway, page 226).

The regional relation of industry to resource in the United States is most gross and wasteful. A readjustment all along the line is demanded in the interests of economy. It would be difficult indeed to show why we should not have a series of free ports (see Howe, page 236) and modernized terminals with belt line railways and all conveniences. The business men of cities where it costs more than two dollars to switch a car anywhere in the city will be particularly interested in Mr. Barney's presentation of the terminal port (see page 245). A system of improved inland waterways (see Hess, page 259) seems to be our only escape from a lot of very expensive railroad building. Beyond a doubt, too, we need an entirely new system of railway rate-making which will gradually reduce the advantages of a few points and let industry gradually adjust itself to resources rather than pile up in a few centers that have competitive rates. Here, again, the illness of a contributor caused a gap.

The record of an easily attainable industrial city with no slums and plenty of room and play space should be of interest to the constructive type of mind (see Smith, page 283).

Foreign trade is something that we have seen but dimly through the "home market" haze and seeing it dimly it is perhaps but natural that we should as Mr. Pratt (see page 291) points out, have left many things undone in our quest for it. His call for more efficiency seems well founded. Our new and more serious point of view is shown by the recent establishment of American branch banks in South America (see Kies, page 301). It should not be for a moment forgotten, as pointed out by Mr. Pepper on page 309 and by Mr. Daniels on page 316, that the making of banks does not make capital. It merely fixes channels in which it may flow. A few American loans to South America have apparently been far more effective than mere banks. Mr. Filene's definite suggestion (see page 321) for private coöperative work in promoting foreign trade is worthy the careful perusal of all who have any interest in developing foreign markets.

The American industrial opportunity is the greatest that the world has ever offered to a numerous people. It is in brief to stop wasting resources, material and human, to apply scientific management to our productive efforts and to increase the potentiality of our efforts by better education and through continued promotion of scientific research. Above all we must master the paralysis of industrial depression and banish unemployment from a hungry world. This will give the materials for a large and much needed increase in wages.

J. RUSSELL SMITH.

THE RESOURCES OF UNITED STATES AND THEIR RELATION TO OPPORTUNITY

By R. Malcolm Keir,

Wharton School of Finance and Commerce, University of Pennsylvania.

National prosperity to be enduring must be founded upon natural wealth. Resources create opportunity and by giving a chance to an individual to enrich himself also promote the welfare of the country under whose flag the individual lives. Whether opportunities are rare or abundant depends upon the size of the country in which a man dwells, the number of other persons competing for the use of the same area, and the richness or poverty of natural supplies that the region affords. Opportunity may be measured by the relation between the number of people in a given locality and the free gifts that nature provides, granting of course that the residents have free access to the resources. Judged by the interrelations between area, population and resource where does the United States stand among other nations?

A large country is more apt to give a man a chance to rise than a small one, unless the major part of the large territory is too hot, too cold, or too dry to warrant development. The extension of a land over zones unlike in climate, topography and resource is a blessing brought about by size. This condition assures opportunity through variety. The people on the mountain cannot furnish the things that are easily won from the plain. The temperate zone does not have all the products of the tropics. If a nation is made up of mountain and plain, cold and hot regions, its inhabitants will be engaged in different occupations. Therefore by buying the things which it has not, each section enriches the other. The opportunity for home trade enlarges the occupations of agriculture, transportation and manufacture. The mere size of our country then is a factor in its favor. Florida differs from Massachusetts, southern California is unlike northern California, Kansas City does not resemble Philadelphia. As a consequence Florida can raise oranges for Massachusetts. Southern California is enabled to send lemons to the northern part of the same state. Kansas City

ships meat to Philadelphia. On the other hand Massachusetts may sell watches, pens, pins and machinery to Florida. Northern California supplies lumber to her southern sister. Philadelphia sells carpets and stockings to Kansas City. Diversity in environment permits and produces variety in occupation, and gives rise to a large internal domestic trade. The transportation necessary to haul products from one section to another creates an additional group of occupations and opportunities. There are as many people employed by the railroads of our country as there are men, women and children in the city of Philadelphia. The total number of railroad employees is more than a million and a half. There is only one railroad, the New York, New Haven and Hartford, whose receipts from passenger traffic approach the amount derived from freight. The volume of freight arises from the difference in resources in the various parts of our country. United States is fortunate in being big.

Great Britain, France and Germany all possess internal variety. Mountain and plain present contrasts in each. But none of these nations has the extremes that are presented in the United States. This fact can be more easily seen by a glance at chart I. Whereas France and Germany extend north and south through about six and a half degrees and the United Kingdom reaches ten, our country stretches southward for twenty-five degrees. It must be admitted that in Europe greater ranges in climate are found from west to east. Eastward the modifying influence of the ocean is lost, so summers are warmer and winters colder. However, no European nation covers sufficient area from west to east to feel the extremes of both maritime and continental climate. From north to south the countries are too small to gain distinctive contrasts. Their climates are more even than that of the United States. As a consequence those differences of resource which are due to modification of weather are found more strikingly in United States than in the leading continental nations.

Mere size alone is not a sufficient gauge of the opportunities a region may afford. The number of people dwelling within the country must also be taken into consideration. A small area rich in resources but with a scanty population would grant more chances to gain wealth than a larger domain more generously endowed, but with a larger proportional population pressing upon the natural

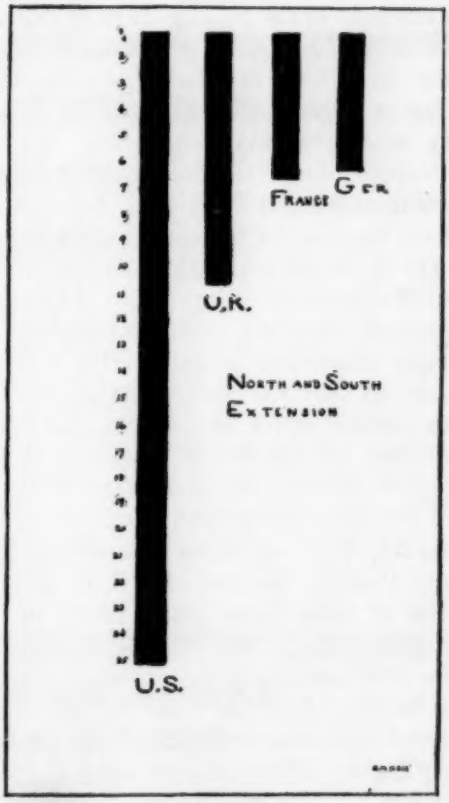


CHART I

gifts. This can be shown by an illustration. In a small farm there might be sixty acres, whereas in a larger one the fields totaled one hundred and sixty. If only three people were dependent upon the smaller place while the larger one was forced to supply the needs of ten then it is clear that the proportion of land to persons is greater in the smaller estate. In like manner a statement of the area of a country or an estimate of the tonnage of its resources means little unless the figures of population are also known, and a proportion is struck between the number of men and the amount of available wealth. The highest degree of opportunity is attained in a large wealthy country with a scanty population. To revert to our illustration: if instead of ten there were four people to be supported by the one hundred and sixty acres, then each person would have a larger share than in the homestead with sixty acres to three people. Chart III shows the population per square mile for United States as compared with some of its rivals. Although our population is more numerous than any of our competitors (see chart II) the overwhelmingly larger area of this nation with corresponding natural wealth means that the chance for the individual here is great. Only our smaller states with the largest masses of people approach the density of population of the rival nations. New Jersey has a density of 377; Massachusetts, 418; Rhode Island, 508. There is a period in the growth of a country in which an increasing population does not mean a lessening of opportunity. This comes about through the fact that with greater numbers a larger sub-division of labor takes place, which in turn occasions new ways of earning a living. It is only when sub-division has reached nearly its maximum that the pressure of population upon resources begins to be felt. After the point has been attained, further increase in numbers would mean competition for jobs and the lowering of the price of labor. Then the only relief is a limitation upon population or emigration to newer lands. The larger a country is, and the more natural wealth it possesses, the longer it will take to arrive at this end. Although it is more than three hundred years since men began to draw upon the resources of our country we have only recently begun to feel the pinch of population and that only in a few special places.

Area and population are general terms, and, although interesting, are not conclusive evidence as to the opportunities to be found

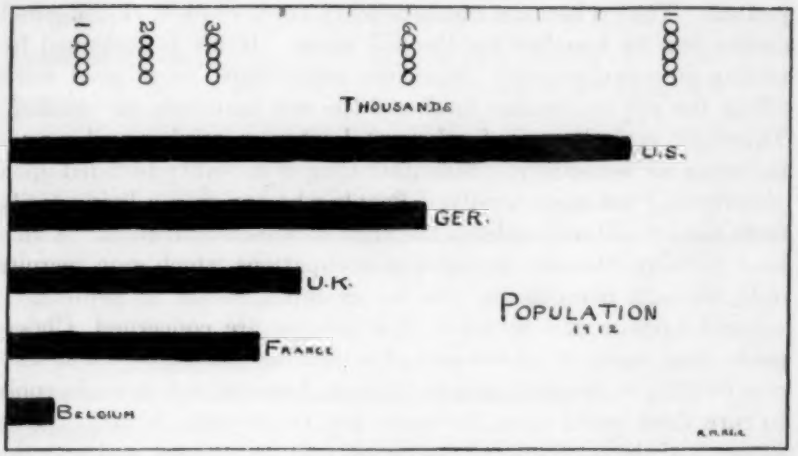


CHART II

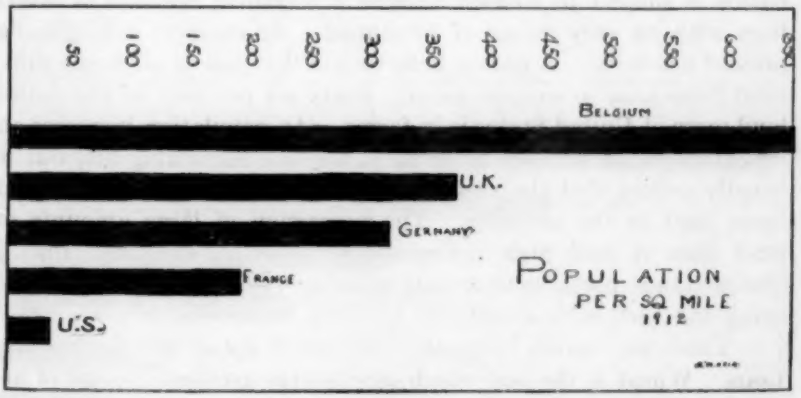


CHART III

in United States. When you turn to a more specific study of our wealth the agricultural group is the one to be considered at the outset. Wherever it is available soil is the first resource to be exploited. That is because man's primary needs of food, clothing and shelter can be supplied by the soil alone. If life is sustained by mining or manufacturing, some one, somewhere, must be at work tilling the soil to produce food and the raw materials for clothing. Therefore agriculture is fundamental whereas mining and manufacturing are secondary. Manufacturing is in reality founded upon poverty and not upon wealth. People who can gain a living easily from nature will not undergo the rigor of a factory régime. A rich land prevents the development of occupations which gain recruits only through compulsion. As an example, so far as protection, natural harbors and access to the interior are concerned, Chesapeake Bay ought to be the seat of a thriving commerce. The natural fertility of the land around the bay, however, has caused people to turn their backs upon the water and to develop the soil. With so much of the total area of our country fit for farming and with the variety afforded by the extent of our boundaries, it is not surprising that agriculture has played so important a part for so long a time in our development. A nation can exist by trade and commerce and can buy its food and raw materials from abroad, but such a nation is subject to sudden collapse if anything destroys or interferes with its only means of livelihood. An example is England's present necessity. A nation is fortunate that has at all times sufficient farm area to support itself. Forty-six per cent of the entire land mass of United States is in farms. As population increases an inventive people may contrive novel ways of sustaining life, but it usually occurs that the new methods of livelihood make a demand upon land in the ultimate. The possession of large amounts of land then is well nigh indispensable. In this essential United States stands preëminent among nations. Charts III-A and III-B bring the fact more clearly to the fore.

There are certain crops that are raised by all the leading nations. Wheat is the one which receives the greatest amount of attention. United States stands above all others in the total amount of wheat produced (see chart IV). Our harvest is more than a third greater than that of Russia, our nearest rival. We have more than enough wheat for our own people, so export 12 per cent

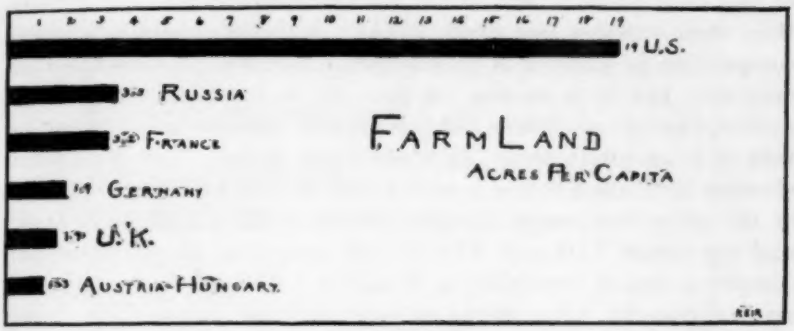

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
1st U.S.
3rd RUSSIA
2nd FRANCE
4th GERMANY
5th U.K.
6th AUSTRIA-HUNGARY
FARM LAND
ACRES PER CAPITA

CHART III A

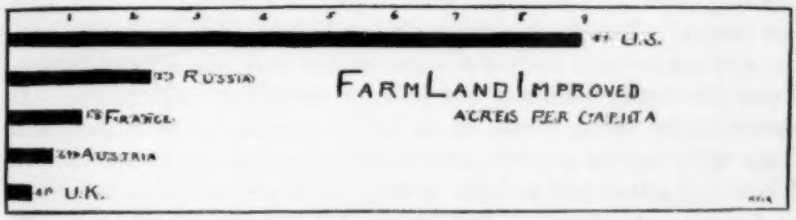


CHART III B

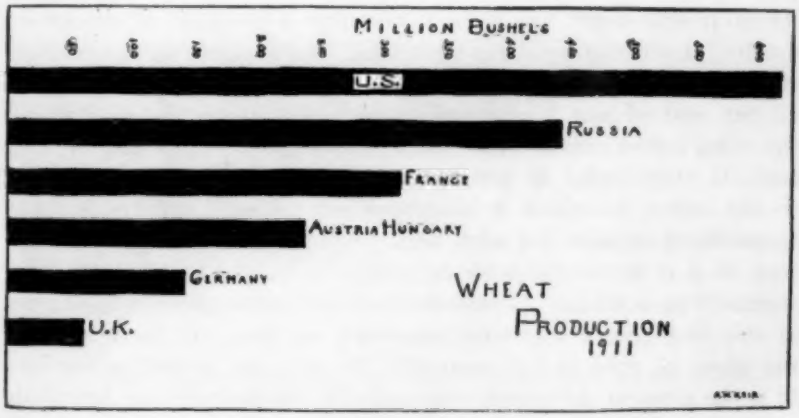


CHART IV

of our crop to help feed other nations whose wants are greater than their supplies (see chart IV-A). Although there is a closer competition in growing of oats (chart V and V-A) we lead in that crop also, but by a smaller margin. In barley (chart VI) Russia overtops us but we follow behind her and surpass the rest of the field in gross production. In bushels per capita (chart VI-A) the showing for United States is not as good as that of Europe. So far as the other two common crops, potatoes (chart VII and VII-A) and rye (chart VIII and VIII-A) are concerned the tally for our country is not so favorable, as is shown. Both of these crops are signs of poverty. Rye grows on poor land and potatoes give large yields. If a nation shows much farm area devoted to them it proves that population is pressing heavily upon the soil.

These charts do not adequately portray the agricultural supremacy of United States or the great source of wealth the farm is to our nation. The crops so far mentioned while common to the leading nations are not the most important ones in the United States. Even the much vaunted wheat is of secondary importance. If measured by value, wheat ranks fourth among our farm harvests. Corn is by far our greatest agricultural resource (see chart IX and IX-A). An area half as large again as Italy and nearly as extensive as France or Germany is devoted to this cereal. Three-fourths of all the corn raised in the world is upon American farms. In acreage corn is more than twice as important as our own wheat although our wheat crop is the greatest in the world. The reason that the majority of people slight the value of corn as a resource is because so much of it is consumed where it grows. It is not so much an article of human food or of international commerce as is wheat. Although 12 per cent of our wheat crop goes abroad, only 1 per cent of the corn leaves our shores. Since foreign nations do not bid for corn its vicissitudes do not make reading matter for newspapers, so the extent to which it influences our national welfare is little appreciated outside the corn belt. Animals on the farm eat the corn so it is not so valuable an article of freight for railroads and steamers as is wheat. There are not such great elevators for corn at shipping points to excite comment, as there are for wheat, so the place of corn in our economic life does not attract attention. It is the greatest American crop and it is distinctively an American product for outside of our confines it is little known to farmers.

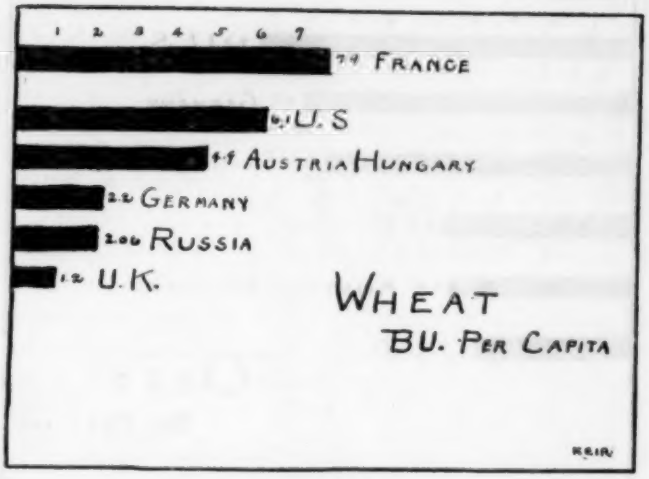


CHART IV A

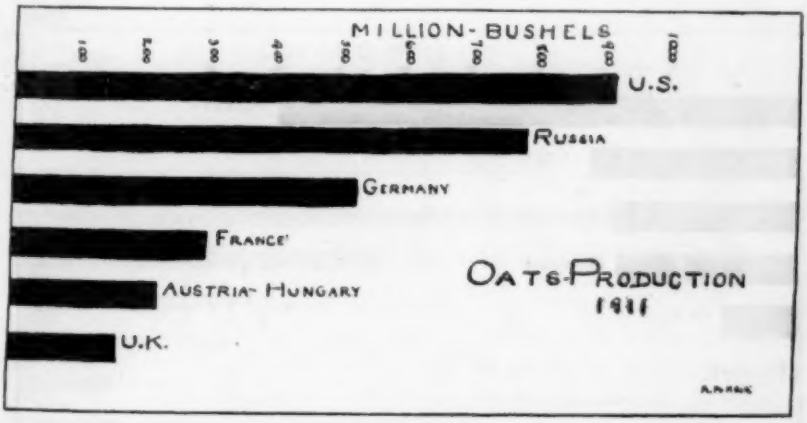


CHART V

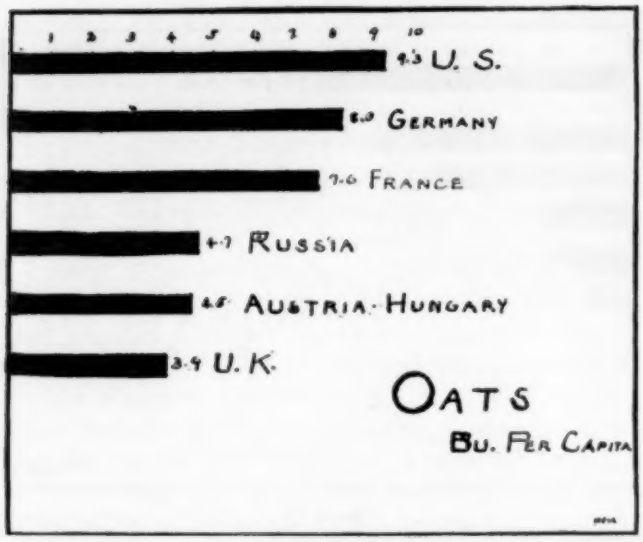


CHART V A

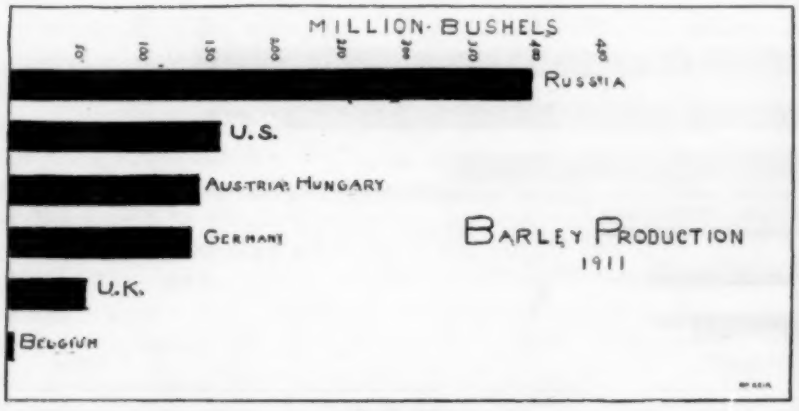


CHART VI

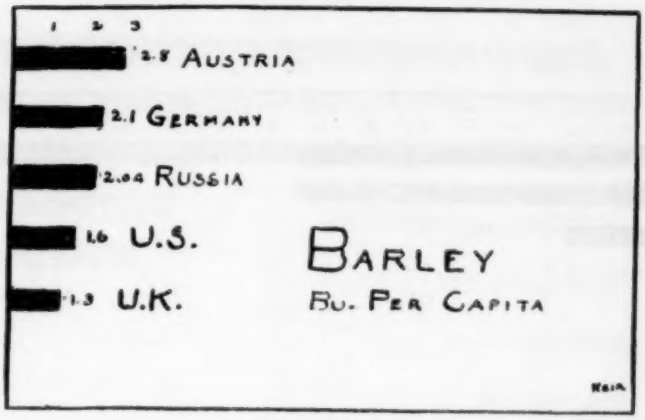
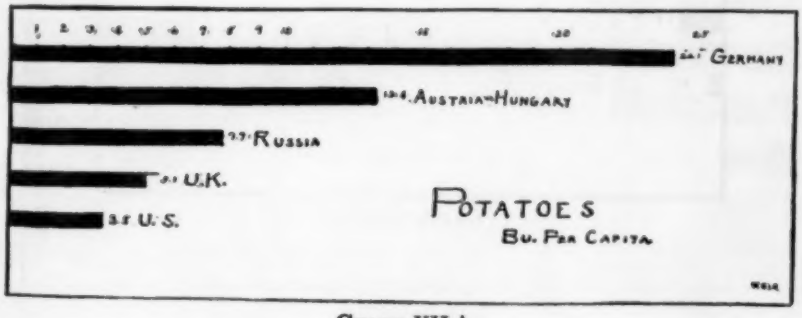


CHART VI A

CHART VII



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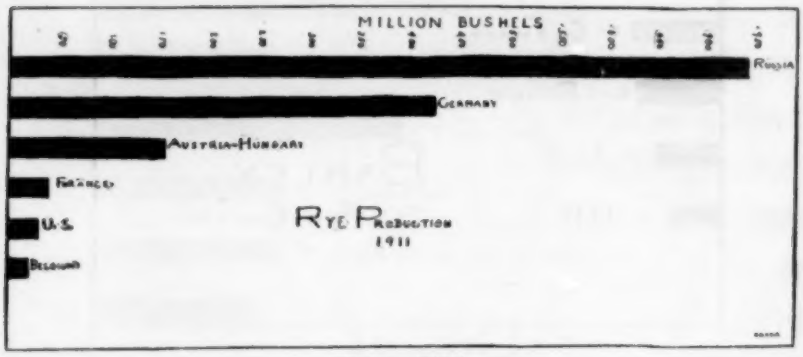

CHART VIII

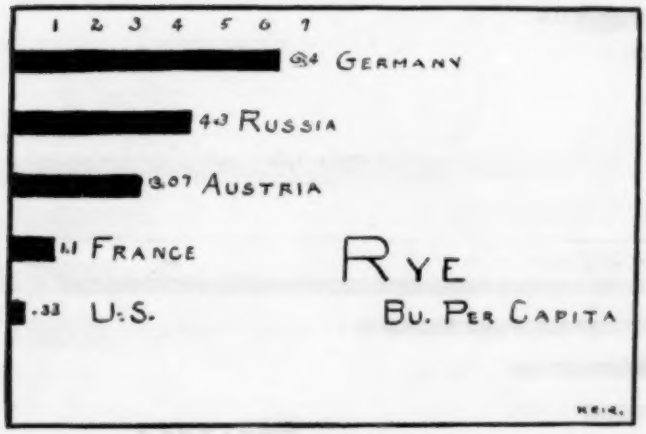

CHART VIII A

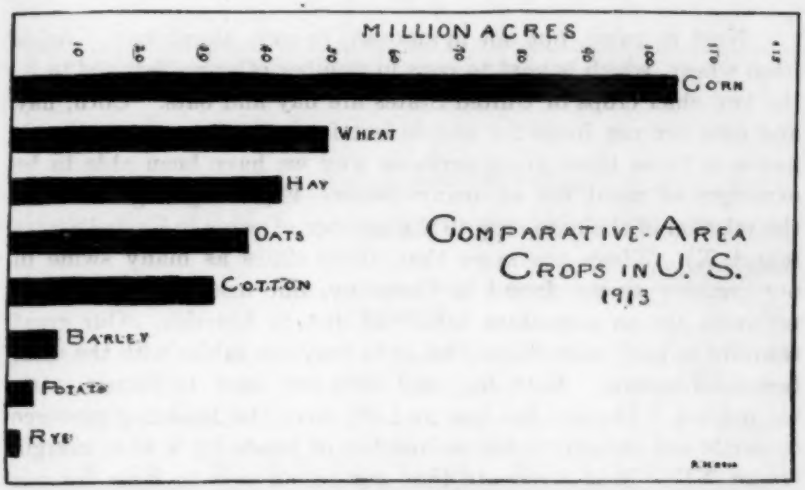

CHART IX

CHART IX A

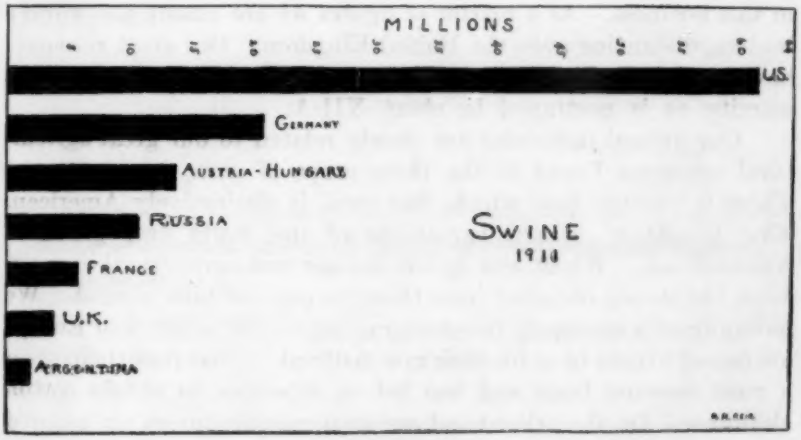

CHART X

Next in value, but not in amount, to corn, stands hay. Aside from wheat, which is next to corn in number of acres devoted to it, the two chief crops of United States are hay and oats. Corn, hay and oats are not foods for people but for animals. Our predominance in these three crops explains why we have been able to be exporters of meat for so many years. Especially significant is the relation of the corn crop to the number of swine in United States (chart X). There are more than three times as many swine in our country as are found in Germany, our nearest rival. Pork products are an important article of diet in America. Our great resource in pork animals enables us to vary our tables with the most beneficial results. Both hay and corn are used to fatten cattle for market. Despite the hue and cry over the lessening resource in cattle our country leads in number of heads by a wide margin (chart XI). It is fortunate that our resource is so large for our demand is even greater and we import meat animals for our use. This particular case is one illustration wherein despite the vastness of our resource the wants of our population have almost caught up with it. The charts X-A and XI-A showing the number of head per capita bring out the reasons for our position in the meat industry.

Some sheep are fattened on farms but our largest flocks are found on the great ranges of the southwest and northwest. Eastern people having witnessed or read about the decline in sheep raising in America have become imbued with the idea that we are a nonentity in this business. As a matter of figures we are among the world's leaders, distancing even the United Kingdom. Our great resource, however, is balanced by a great demand and so produces relative scarcity as is portrayed in chart XII-A.

Our animal industries are closely related to our great agricultural resources found in the three crops of corn, hay and oats. There is another crop which, like corn, is distinctively American. That is cotton. Nearly two-thirds of the world crop grows in Americal soil. Wheat and cotton are our two agricultural exports. With the money obtained from them we pay our bills abroad. We have almost a monopoly in cotton raising, so the factories of Europe are forced to turn to us for their raw material. That puts them upon a most insecure basis and has led to attempts to obtain cotton elsewhere. On the other hand our own manufacturers are assured of a sufficient supply of raw material. No matter what happens

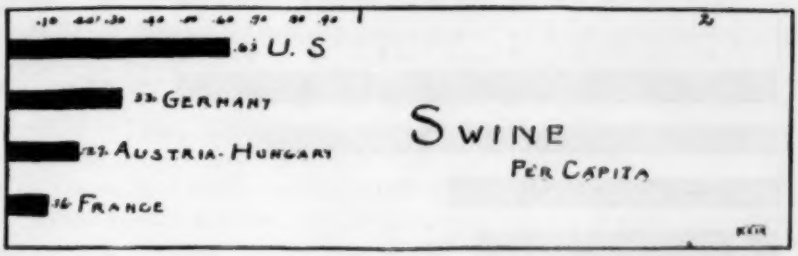

CHART X A

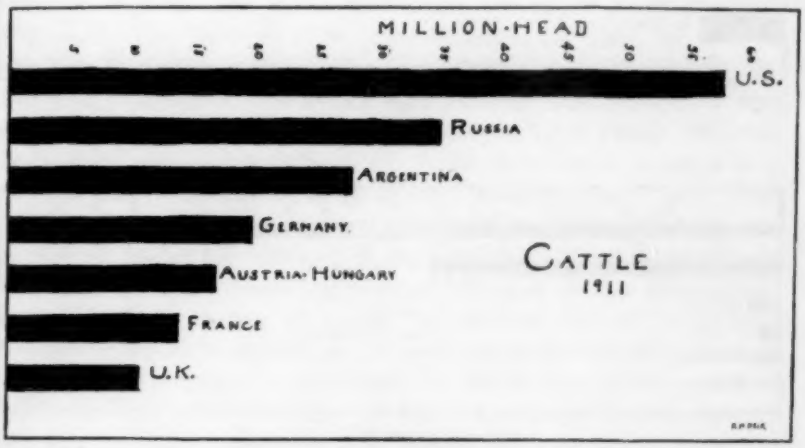

CHART XI

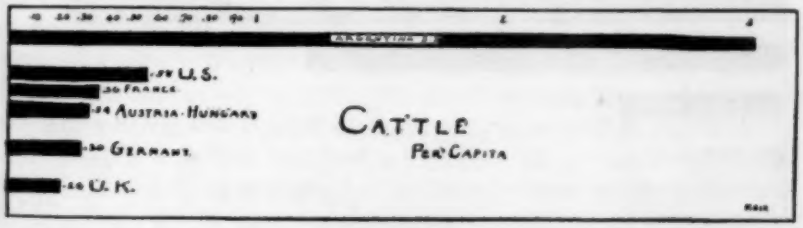

CHART XI A

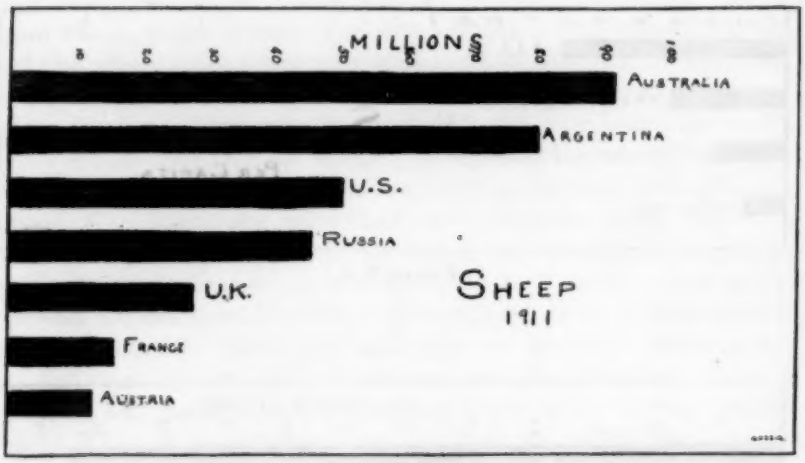

CHART XII

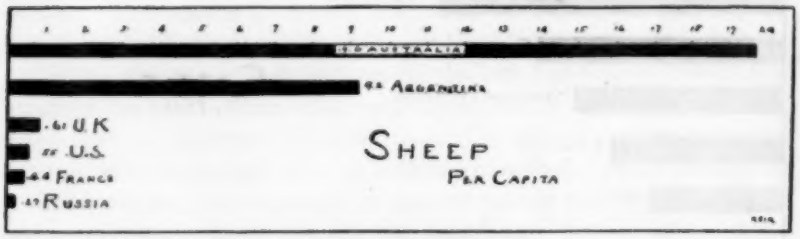

CHART XII A

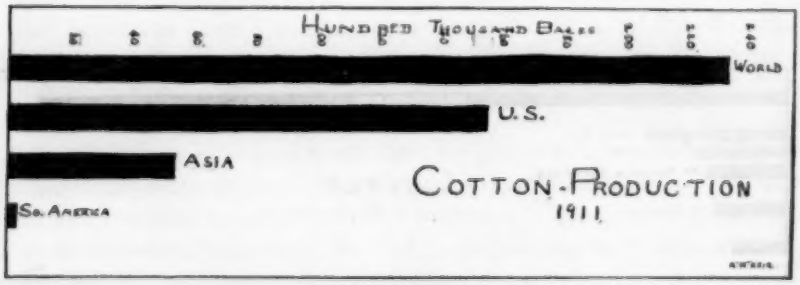

CHART XIII

in the rest of the world, American cotton manufacturers need not fear a curtailment of business because of lack of substance upon which to work.

In corn, wheat and cotton the farms of United States possess a resource that places the nation on a firm basis both in regard to food and crude stuff for our factories to manipulate.

Unless new lands are constantly available, farming cannot long continue except some means of restoring to the soil those elements of plant food taken from it by successive harvests is discovered. Of all the things growing crops need, those most often lacking in the ground are potassium, nitrogen and phosphorus. At present Germany supplies the world with potash because she has vast deposits of rock from which this element may be easily obtained. But we are just learning to be independent of Germany by utilizing the kelp that grows along our shores in the place of potash rock. For years Chile held the monopoly of the nitrates needed by agriculturists. The need for substitutes has produced them. We now know that certain plants have the power to extract nitrogen from the air and secrete it in their roots. Bacteriologists have aided farmers also by showing that minute organisms have the same power of making use of the nitrogen in the air. Finally man himself can take toll from the large supplies of nitrogen in the atmosphere, separating it by means of a powerful electric current. Our large resource in water power will enable us to generate current so cheaply that we can obtain nitrogen from the air at low enough price to sell it as fertilizer. The last of the three essential elements for soil fertility is phosphorus. No adequate substitutes have yet been found for phosphate rock. In this resource United States stands almost alone. Before 1906 our own farmers derived phosphate from Florida, Tennessee and South Carolina. Between 1867 and 1913, forty-five million tons were taken from these three states. It was estimated that only fifty-eight million tons remained. The only other available sources of phosphorus were in Tunis, Belgium and France. In 1912, three million tons were taken from our deposit whereas Tunis produced only one million and France and Belgium together but half a million. So it was a decidedly good stroke of fortune that gave to United States by the discovery of new fields in the west, an enormous new supply of phosphorus. The estimates of the western resource place it as immeasurably

greater than all known deposits in the world. There are about one-half billion tons of high grade rock in sight. As yet this rock does not influence the market because of its newness, the lack of railroads, the high cost of transportation across the continent, and the remoteness of the resource from the places where it would be used. Eventually, however, with the exhaustion of our southern supply, not only the United States but the whole agricultural world will have to draw upon our west for this most crucial element in soil fertility. In consequence United States not only is wealthy in farm lands per capita but also owns the means to keep the fields productive.

Forest resources are related to agriculture. Farmers' woodlots comprise 95 per cent of the available wood supply east of the great plains. In our early history forest resources were so abundant as to be a menace. Trees occupied the ground needed for farms. Instead of being regarded as a thing of value a tree was looked upon as a nuisance to be eradicated. So forests were ruthlessly butchered to make way for plows. Later when lumbering companies began operations, so vast were the stretches of trees that no pains were taken to be frugal in the cutting, and much unnecessary waste occurred. The oldest, most thickly settled portions of the nation have seen a positive elimination of forest resources because naturally the trees nearest to market on easy transportation routes would be cut first. As a result only 65 per cent of the original forest now remains. This present area is compared to those possessed by the leading European nations in chart XIV. The proportion forests bear to our total land area is shown in chart XV. The careless manner in which we have used good wood for temporary articles contrasted with the painstaking economy in Europe indicates how much greater than theirs our timber supply has been. But even in United States we are beginning to put on the market cheaper woods for short-lived commodities, and to veneer high grades instead of employing solid pieces. We have not exhausted our supply, but one or two object lessons have taught us that undue prodigality does not pay.

Turning from agricultural and forest resources to those needed for manufacturing, let us consider the raw materials we possess and some of the sources of power necessary to turn the raw materials into finished products. Some of the crude stock such as cotton,

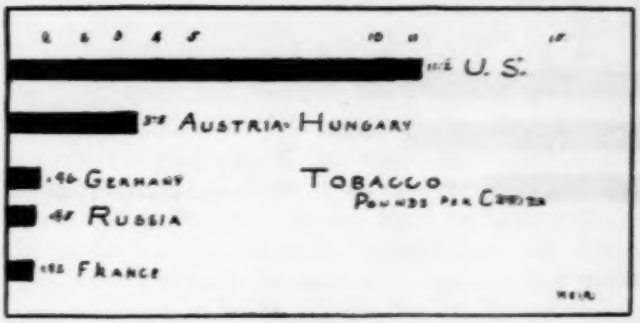

CHART XIII A

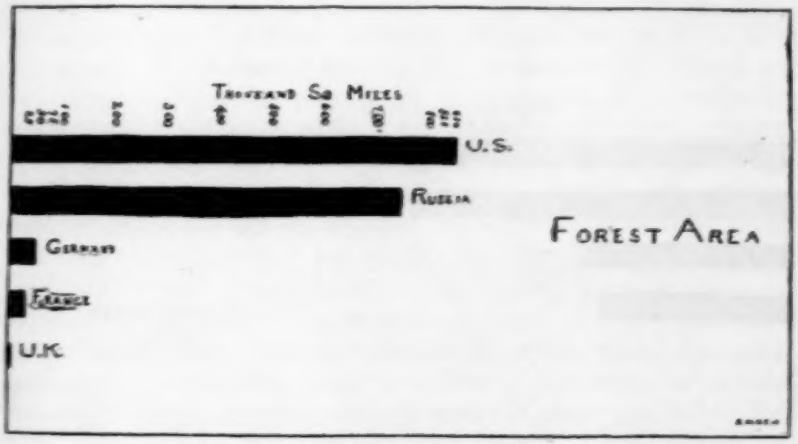

CHART XIV

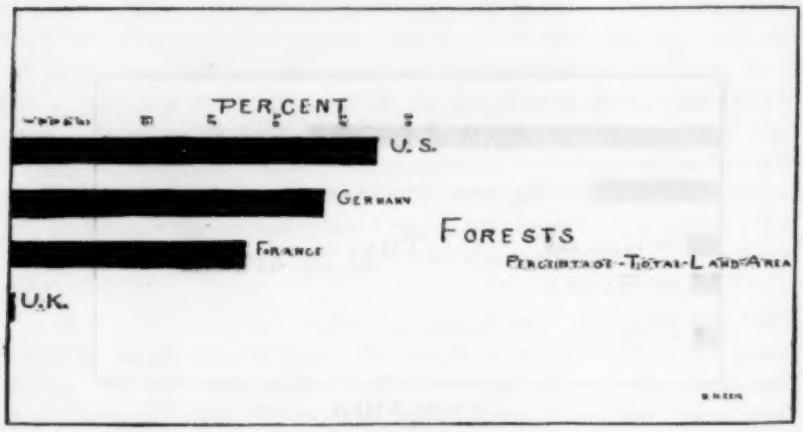

CHART XV

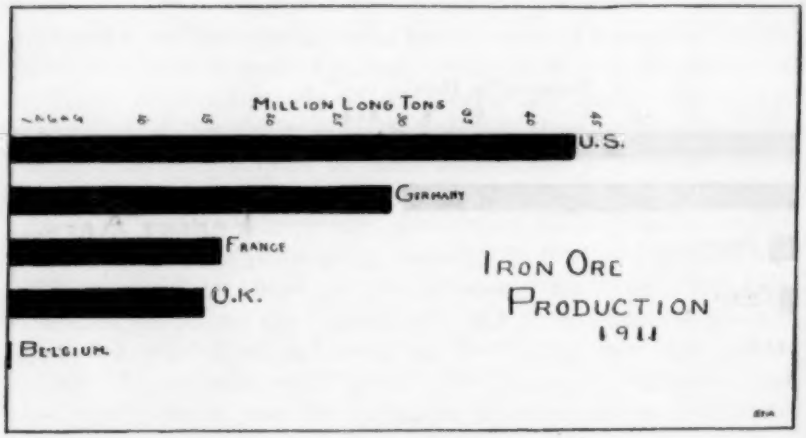

CHART XVI

flax, wood and wool for factories comes from the farms. These have already been included in the discussion of agriculture. Therefore let us review the mineral raw materials found in United States.

The chief mineral of the world not used for power is iron ore. The value of iron ore deposits depends on their availability and composition. Almost seventy-five per cent of our ores are in the Lake Superior region and therefore can reach all points along the shores by the cheapest water transportation. Special vessels have been built for the carrying of the largest quantities of ore across the lakes in the quickest time. Iron producers along the waterfront can unload their raw materials right on their own premises. Pittsburgh is favored by the lake transportation also because the longest part of the haul for her iron is by water. The eastern producers are handicapped by an overland route from the lower lake depots and so tend to import their raw materials from Cuba or Spain with water carriage rather than use American ores. However we have no great advantage over Great Britain and Germany in the matter of availability of ore deposits. The English iron producers are near the coast and can get their ores from near at hand or like our eastern iron makers may import it by water from abroad. Germany too can take advantage of the Rhine River for water transportation. Our chief advantage does not rest so much upon the availability of the ore deposits as it does upon their extent and composition. The size of our fields in comparison with our foreign competitors is shown by chart XVI. If iron ore contains phosphorus, difficulty is met in its reduction and the maintenance of a high quality of iron. Fortunately, our deposits, except the southern ones in Alabama, are nearly free from this deteriorating agent. The percentage of iron in the ore and the ease of mining it are two other important considerations. Our Lake Superior ores are among the richest in the world and are so near the surface and so easy to mine that steam shovels can be employed for the work. This has an important bearing upon their value to our blast furnace operators because it makes the raw material cheap and is an offset to labor cost, which is higher here than abroad. The United States is the greatest iron maker in the world, and her industry rests upon domestic ores. The amount of ore import into our country is comparatively small, amounting in 1913 to about four per cent of that mined within our own bounds. Both England and Germany

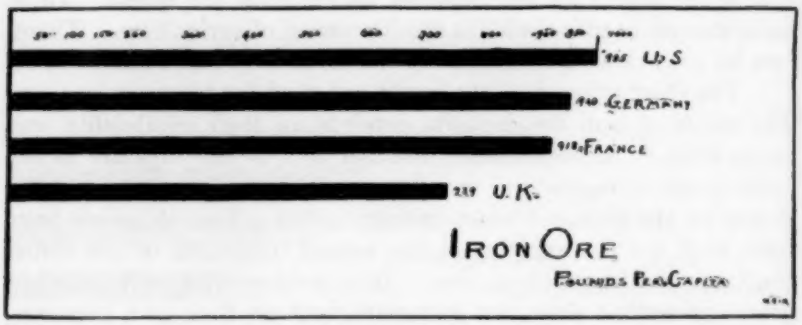

CHART XVI A

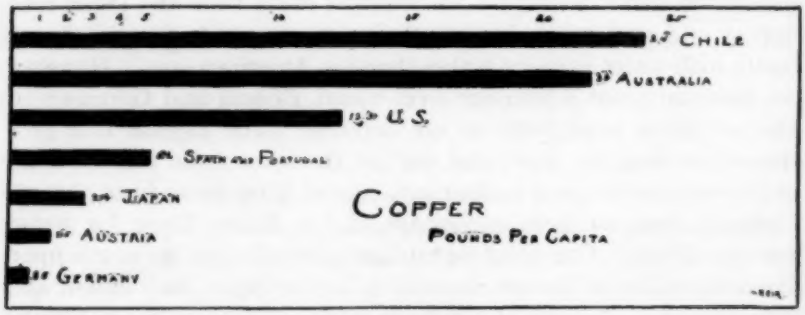

CHART XVII

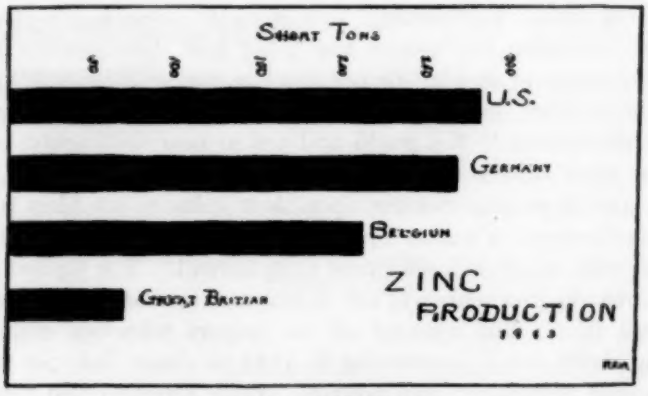

CHART XVIII

are unable to produce enough ore for their own furnaces and are forced to import large amounts.

Copper is derived from copper ores, and as a by-product from many other ores such as lead, gold, silver and zinc. We cannot estimate the amount of our copper resource as accurately as our iron or coal. The only way we may measure our wealth in copper against the rest of the world is by figures of production. Fifty-five per cent of the copper used by the people of the whole globe comes from United States. We have no serious European rival. Spain and Portugal receive the greatest credit in continental production but even these have but one-tenth of our production. Japan competes with us but on a par with Spain and Portugal. Australia falls somewhat below these three. Nearer home we have the production of Mexico and Chile with which to contend. Of all of those working with the same metal, Mexico comes closest to our production, but whereas Mexican output is measured by a hundred million pounds ours reaches over a billion. About half of the copper refined by the world is used for electrical apparatus. Half of the remainder forms one of the raw materials for brass. Since both of these are essential to our economic welfare, our wealth in copper is a cause for congratulation.

Lead and zinc are not so important as resources or as widely useful in manufacture, as iron and copper. For instance, the chief use of lead is for the manufacture of paint. One-third of the lead produced is used for this purpose. Compared to the multifarious uses of iron, lead sinks into insignificance. Nevertheless, it is a resource of considerable value. Zinc finds its largest market as a protective covering for iron that is exposed to weather. A large amount of it forms one of the raw materials for brass. Charts XVIII and XIX show the importance of lead and zinc as resources in the leading countries of the world. Thirty-two per cent of the world's lead and 29 per cent of the zinc come from our country.

Since 1830[1] the United States has been an important source for the world's supply of the precious metals, gold and silver. Africa, United States and Australasia are in a class by themselves in the production of gold. No other part of the world's surface even remotely approaches these three leaders. Africa supplies 45 per cent, United States, 20 per cent and Australasia, 11 per cent.

[1] 1830, silver; 1850, gold.

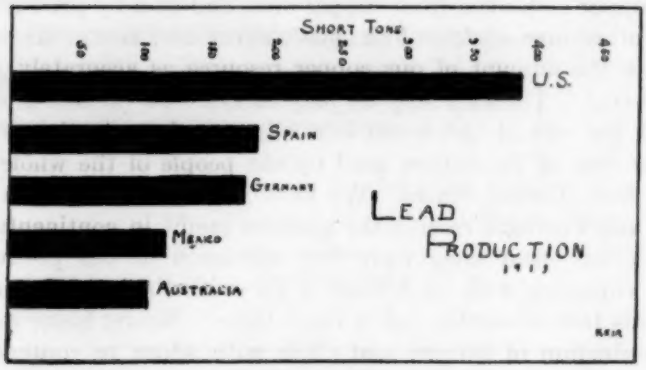

CHART XIX

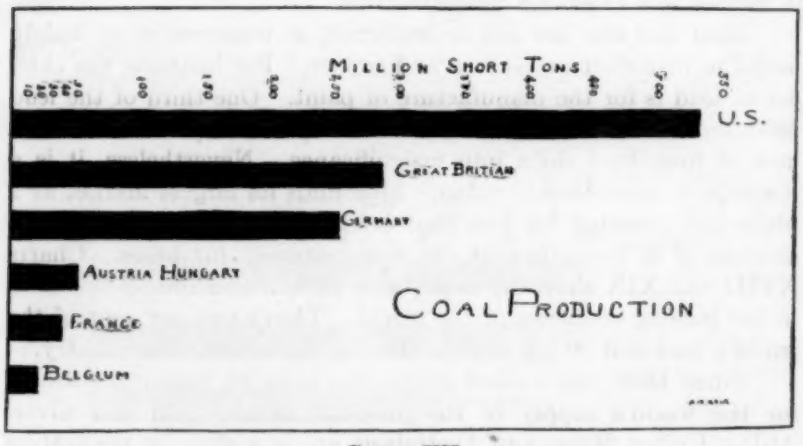

CHART XX

In manufacturing, power is just as important an element as the possession of raw materials. In some industries the availability of power decides where the crude stock shall be made into finished products. Thus the presence of fuel determines the location of iron manufacture and not the ownership of iron ore. Nations which have within their confines quantities of ore without fuel are not iron makers but ore exporters. For example, Spain and Cuba own deposits of ore but since they lack fuel send the ore to England, Germany and United States for manipulation.

The principal source of all mechanical power at present is coal. All of the great nations have large coal fields. Perhaps it would not be too much to say that they would not be great if they did not hold coal. Coal is the most important of all mineral products, even surpassing iron in that respect. Belgium has a place among manufacturing nations that is astonishing if her area and population only are considered but is easily understood if one looks at her coal resources (see chart XX–A). Since coal is so all-important, it is comforting to Americans to discover that 60 to 70 per cent of the known coal deposits of the world are within our territory. It is a cause for additional gratification to learn that besides being greatest in amount our coals are of the highest known quality. Quality is determined by heating capacity. The higher the percentage of carbon in coal, the greater will be its power to throw off heat. The harder coal is, the greater will be its proportion of carbon. The anthracite or hard coal deposits of America are by far the most important of any in the world. Only in Wales is there a coal that approaches the quality of the anthracite found in United States. Even these Welsh coals are not nearly so good as ours and would be classified here as between our anthracite and soft (bituminous) coals. Although we have the largest area of anthracite in the world, except possibly China, the actual number of square miles in the anthracite fields is puny compared to our own bituminous or soft coal deposits. In anthracite we have less than one-thousandth of the area we ourselves possess in bituminous. The actual figures are 496 square miles for hard coal and 500,000 square miles for the soft variety. Although we have a virtual monopoly of the anthracite deposits of the world, we are by no means so fortunate in regard to bituminous. Despite the fact that all our great rivals own large fields of coal, none of them is of such vast extent as ours. Chart

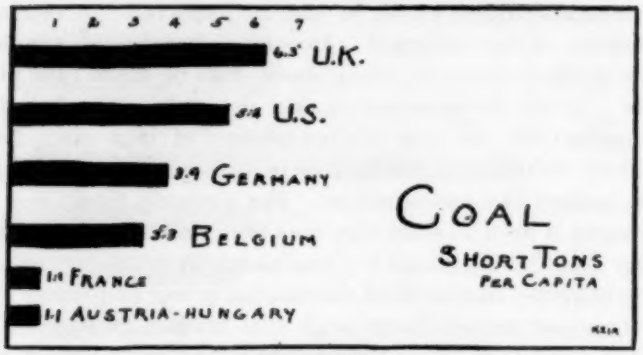

CHART XX A

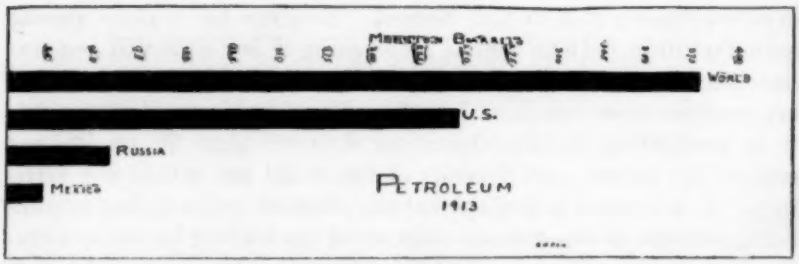

CHART XXI

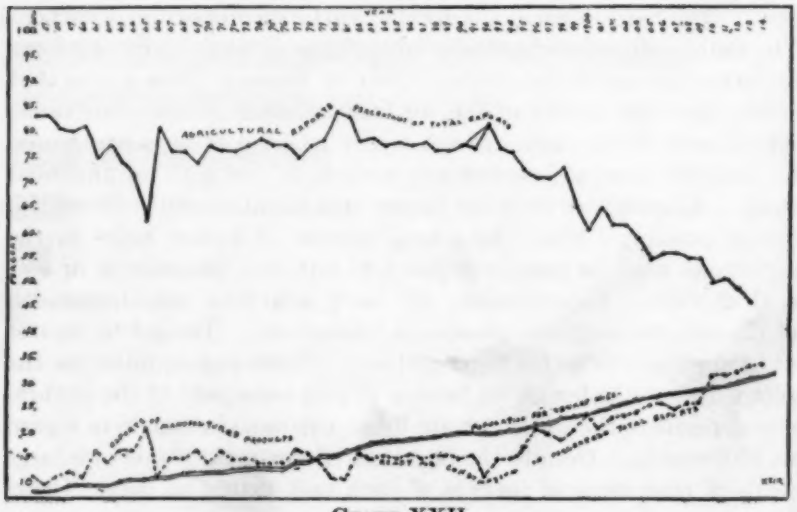

CHART XXII

XX illustrates the supremacy of United States in this most significant source of power. It is estimated that we have 500,000 square miles of coal lands. This area about equals the combined land mass of Germany (208,795 square miles), France (207,129 square miles), and the United Kingdom (121,316 square miles).

Next to coal the most important mineral power producer is petroleum. About one-fourth of all the oil taken from the ground in United States is used for this purpose. As United States furnishes the greatest tonnage of coal, so with petroleum, we contribute the largest number of barrels to the world. In 1913, 65 per cent of the whole supply came from our wells. Our only serious rival in Europe is Russia. Her wells on the Caspian Sea have threatened our supremacy at times, and even for a short period exceeded the output of United States. Russia led the world between 1898 and 1902. Since 1902 new discoveries have constantly increased the American yield until in 1913 Russia our nearest competitor produced less than one-fourth as much as we did. The wells of California alone, our largest field, supplied over a third more than Russia.[2] Whereas we produced 65 per cent of the world's total in 1913, Russia reached only 15 per cent. The next nation on the list is Mexico with 6 per cent. The United States has given to the world more than one-half (59 per cent) of the oil used since its discovery.

Natural gas is closely associated with petroleum. It is largely used in the regions where it is found and is particularly valuable to steel, glass, and cement mills. The amount consumed industrially in 1913 was worth thirty-seven million dollars, but, since no other nation employs natural gas for industrial purposes, we have no basis for comparison. The area covered by gas wells is more than twenty times as extensive as our anthracite coal fields. Wherever it can be obtained, natural gas is the most ideal fuel there is. All others must be turned to gas before they are burned most efficiently. No other gas fuel is so pure nor so rich in heat value as this one. Abundance makes gas cheap while quality causes it to be most desirable. As a result mills located in natural gas regions are doubly blessed.

At the beginning of this paper it was pointed out that opportunity does not depend entirely upon resources but also upon the

[2] Russia, 60,935,482 barrels; California, 97,788,525 barrels.

number of people who utilize them. If the resources decline while the population remains stationary, opportunity also diminishes. In case population increases while resources remain stationary, again does opportunity become less. Should population grow at the same time that resource decreased, opportunities vanish rapidly. It is this last condition that is facing United States. While it is true that we are remarkably wealthy, it is also a fact that our natural wealth is being depleted at an astonishing rate. Farm lands are worn out by incorrect cultivation and erosion. Forests have been wasted by reckless cutting. Mineral wealth has been thrown away by careless mining. At the same time, population has been steadily increasing. Unless a halt is called upon the waste and population checked we will no longer be the Land of Opportunity, but our people, like the citizens of European countries, will have to seek fortune in new lands opened elsewhere.

That we need our raw materials at home is shown by chart XXII. Up to the year 1892 our exports were chiefly farm products. Beginning then and continuing ever since the percentage of agricultural exports to the total has rapidly declined while at the same time and for the same period of years manufactured goods ready for consumption have comprised a larger and larger proportion of the things we have sold abroad. Today the percentage is increasing more rapidly than the increase in population. With a corresponding falling off in farm exports it follows that greater numbers of men are working in factories. Two results should follow. We ought to pay more attention to conserving the wealth we have, and our efforts to gain foreign trade ought to take a new direction. We should seek to sell manufactured goods and keep our raw materials at home.

PROLONGING LIFE AND DEVELOPING PERSONAL POWERS

By J. Pease Norton,
West Haven, Conn.

To promote social progress should be the aim of *constructive* economics—if we may be permitted to use this phrase to distinguish our subjects from those of *theoretical* economics. We deal with cost of production of wealth and with cost of production of labor. We are interested in understanding the elusive conception of the standard of living of our people. We are interested in the meaning of human life—its length of days, its breadth and its depth. All fields of science we draw upon in estimating, measuring and considering how social progress may be promoted.

Sumner's Conception of Social Progress

That eminent economist and profound thinker, Prof. William Graham Sumner, once remarked to the writer that he had come to look upon theoretical economics as a bankrupt science. On account of this conviction, Professor Sumner broadened his studies during the later years of his life, to include ethnology and anthropology, believing that a much wider array of facts were needed to justify even tentative conclusions in the social sciences. His conception of social progress was the product of years of research in many fields and it is with great respect that I am led to adopt his conception as the most rational one which has come to my attention. Professor Sumner held that social progress should be measured by the degree of control over the environment exercised by a social group at a given time and place. No other criterion—and he had tested many—permitted the conclusion that social progress had occurred. He saw successive eras of civilization ended abruptly by violent wars. He saw in history how devastation and desolation regularly followed civilization and prosperity.

Early Distinctions Between Ophelimity and Usefulness

Pareto refers in his writings to the distinction between utility and usefulness, and sharply to distinguish the meanings, he coined

the word "ophelimity" as equivalent to desirability without regard to the point whether the object desired was useful for continuing the existence of the individual. Professor Sumner had in mind in his conception of social progress, usefulness, rather than ophelimity. Theoretical economics have developed through the complications of the conceptions of *ophelimity* and wealth—the latter defined as material possessions having *ophelimity*.

Since men desire all manner of things which are not useful for continuing their existence, some of which are positively destructive, what generalizations of theoretical economics are applicable to a policy of constructive social progress? The slogans of *laissez-faire* derived from the writings of the early economists in regard to commerce emphasized the desirability of complete freedom from legislative interference. The purpose of legislative interference is theoretically—and often practically—to promote social progress.

Of What Does Social Progress Consist?

Sumner was wont to classify the acts of individuals into two grand divisions, probably fundamental: self-maintenance and self-perpetuation. Now the life of the individual consists of a series of acts which are capable of classification. Let us call this the breadth of life. It is interesting to maintain for several weeks a fifteen minute record, allotting one minute every fifteen minutes to writing down just what has occupied the individual during the preceding fourteen minutes. Such records show that weekly averages of the time record are very much alike. The number of hours devoted to various pursuits show how closely the individual is limited by nature, by position, and by environment. Most people devote two-thirds of their time record to sleep and to self-maintenance. These hours are occupied in performing a series of acts which are directly or indirectly ways of controlling the environment. They largely comprise acts which are in nature applications of the useful arts to the problems of self-maintenance. Thus Professor Sumner's conception of social progress includes the advances in the useful arts. In fact we may define the arts as man's "useful immaterial possessions"—useful in the sense of tending toward self-maintenance. These useful immaterial possessions keep the race alive. Some of them are rational and consciously understood—many of them are empirically practiced. If we divide the environ-

ment of an individual into two classes, the material environment as distinguished from the social environment, these useful immaterial possessions comprise two classes, the useful arts and the *mores*.

Professor Sumner's death occurred before the completion of several proposed publications, but not before the initial work upon the *mores*.

Useful Arts

By consulting the ordinary library index we find that the useful arts are mentioned and classified by the catalogues. Thus, in the quest for food under self-maintenance we have agriculture, domestication of plants, hunting, fishing; in the quest for warmth and shelter, we have architecture, building materials, clothing; in the quest for continuance of life we have sanitation, hygiene; and these all are sub-divided into hundreds of classifications. By no means unimportant are transportation, exchange, and the dissemination of intelligence; the latter sub-divided into writing, printing, education, libraries, telegraph, telephone, etc. Then, too, we find the arts of government, of war, etc.—ways of controlling the social environment. Historically the arts are intimately associated with the *mores* and a slow evolution has separated rather painfully some of the chaff from the wheat.

But these useful arts, imperfect as they are, these immaterial possessions, are capable of description, classification and inventory. When put into practice they create wealth. Given the raw materials, the man and the art, wealth may be created. The efficiency of an art in a given classification for accomplishing an operation is capable of measurement relatively to another art in the same group in time saved per unit of product. Further, for a given population, the value of an art is readily capitalized in wealth value; and wages, interest and profits, economic quantities, may be created by the application of the arts. New arts are invented by the brain of man; hence the signal importance of the conservation or, better, the development of our human resources. No clear idea of the history of the race is possible without some conception of social progress. The history of the useful arts should be written for the children. The heroes of the school should be those who discovered fire, steam, electricity, the telephone, agricultural machinery, and not the leaders of the civil wars which are forever retarding the inherent forces of social progress.

Inherent Forces for Social Progress

Elsewhere, I have suggested that the inherent forces for social progress reside in the frequency curve of exceptionality. Let us call this the depth of life. The use of frequency curves is more common in other sciences than in our own group. We are all familiar with the notion of skew curves of frequency and the median division. For illustration, a thousand and one soldiers standing in line in order of height would descend from giants to dwarfs. Rearranged by the character of height, we have a frequency curve of a group of men with respect to the physical character of height. These skew curves are convenient ways to present groups of facts and these simple constants may have some value in making our statements more precise. The important character in social progress is exceptionality; not physical but mental. We must leave to experimental psychology, for the present, the important problem of measuring potential exceptionality in the population. From researches already made by the Pearsonian investigators, we may assume as a first approximation that the frequency curve of exceptionality is a skew curve. For the present discussion, we may consider the group arranged by the character of exceptionality, ranging from the mental giants to the mental dwarfs or idiots. By exceptionality, we mean a combined index-number of the characters which favor successful application of the useful arts and capacity to improve or to add to the world's stock of useful truth. In brief such an index should be a coefficient of relative efficiency. An Edison may occur once in one million of population, possibly once in one hundred million. One invention may net, after all costs of production are met, one hour per day for all users of the invention over methods previously used. Suppose the sewing machine saves for each owner ten dollars per year. For a population of 100,000 users, the annual savings would be $1,000,000; for 100,000,000, $1,000,000,000. If half goes to the consumer and half to the inventor for seventeen years or more, the consumer is certainly guilty of appropriating an unearned increment. We all are beneficiaries of this enormous unearned increment, which has been handed down and which is being added to hourly.

The Cause of Social Progress

In a population of 100,000 with one inventor of grade A, whose discovery in a lifetime may result in an annual saving of $1 per capita net, we have an increment in social income of $100,000 through one man. If, now, we double the population and reason that in twice the population we have two inventors of grade A, we then have the increment in social income not twice $100,000, but four times $100,000. In other words, as a first approximation we may reason that the per capita increment in social income increases in proportion to the population, a conclusion which is pretty much at variance with the Malthusian theory of population, but which is in accord nevertheless with the steady growth of population and the increased standards of living. Further, the increment in social income from the work of the exceptional man increases as the square of the population. Finally, the capitalized value of the work of exceptional men increases as the square of population, and, lastly, the life earnings of exceptional men should steadily increase with the population. The central problem in a constructive policy for social progress is the intensive development of the exceptional portion of the population. In such a program the whole people are interested. If one half the population is exceptional in comparison with the other half, the less exceptional half will produce nearly as many exceptional children as the exceptional half. In such a program, no class is left out. Those less successful today might have been the more successful had opportunity come earlier and had minor pitfalls been properly guarded by society. We may think of social progress as inherent in an increasing population, but the friction or resistance caused by the wastes of nations is at times intense. To limit by legislation *multiple initiative* is most unfortunate. Nations may go to great lengths with profit to promote *multiple initiative* which spells opportunity for the men who *can*.

Most Important Wastes of Nations

The three foremost wastes of nations are preventable war, preventable ignorance, and preventable life waste. The waste from failure to develop intensively the potential exceptionality of the population is the industrial opportunity of the hour to remedy. The importance of the technological museum and industrial and

vocational training are obvious. We should look forward to the day when a technological museum shall exist in every social center.

Is it not advisable that every individual should be taught two different self-sustaining trades selected by him from a wide variety? This would greatly assist in making labor more mobile. The writer has urged that federal aid to industrial education should be given through the agency of the army, lining up the necessity of defense with the development of exceptionality. A two-year enlistment of 200,000 young men annually, chosen for exceptionality and stationed near colleges, universities and technical schools, would bring the opportunity for industrial and technical education to large numbers and incidentally build up a magnificent army reserve of trained and efficient men. In the development of our natural resources, in the development of our human resources, nothing is more important than fitting children to earn large incomes in later life—through which sanitary surroundings may be purchased in later years—and at the same time inculcating sanitary and hygienic standards. It is important to know sanitary and hygienic standards and it is equally important to have the income to sustain the higher standards in the practice. Ignorance in regard to hygienic and sanitary standards is prevalent among all classes. This field of self-maintenance which involves the arts of wise living requires a series of investigations and widespread demonstration of results. Consider the wealth of the field; the usefulness of foods; the site of the habitat; the design of the house; chairs for correct posture; ventilation, heating, water supply, lighting, plumbing, exercise, recreation, efficiency at work, sanitary conditions of the factory, hours of labor, thrift. The field is as broad as life itself.

In 1906 the writer discussed the advisability of adding to the number of the secretaries of the President's cabinet a new secretaryship which should have to do with the conservation of human resources.[1] It is with satisfaction that we note the growing importance of the new secretaryship of labor. Those who have labored loyally to create such an office in our government are to be congratulated upon the first great step achieved. It was Mr. Bryan who suggested that the title of such a department should be labor, rather than health. Human life is now represented in the cabinet.

[1] "The Importance of a National Department of Health," *Journal of the American Medical Association*, 1907.

The secretary of labor is charged with the duty of fostering, improving and developing the welfare of the wage-earners of the United States. Further, the secretary of labor is also given authority and directed to report to Congress a "plan of coördination of the powers of the secretary of labor with the powers of present bureaus, commissions and departments, so far as they relate to the welfare of labor in order to unify such activities and with a view to further legislation."

To recall to your minds a summary which the writer prepared after corresponding with a large number of sanitary experts, outlining a possible organization of such a department, it is interesting to note just what has been accomplished. We have a new secretaryship of labor which is the first great step accomplished. In the movement for a national department of health (or labor) which had the support of many organizations, the bureaus proposed in 1907–1909 follow:

Infant Hygiene
Education
Sanitation
Pure Food
Registration of Physicians
Registration of the Drug Industry
Institutions of Relief
Organic Diseases
Quarantine
Health Information
Immigration
Old Age Pensions
Labor Conditions
Research requiring Statistics
Research requiring Laboratories

It was then proposed to transfer existing bureaus to a new department and to create new ones. The first great steps were to secure the new department and a secretaryship in the executive cabinet.

Already the new department of labor assumes the form which was discussed in 1907. Much, of course, remains to be done, but what many predicted was impossible, namely, the addition of a new secretary to the President's cabinet to represent life, labor and health, has now come to pass, in spite of a considerable opposition.

We no longer discuss theories but facts. What President Roosevelt said was inadvisable and what most men said was impossible to accomplish has now been done. Our gratitude goes out to President Taft for not vetoing the bill. We no longer discuss an idealistic scheme. We simply point out the few remaining steps necessary to put into operation a constructive policy of social progress.

The department of labor now includes the following bureaus:

Children's Bureau
Immigration
Naturalization
Labor Statistics

Immediate Need of This Department

The immediate needs of the department of labor are first, larger appropriations, and second, transfer of certain bureaus now in other departments to the department of labor, notably the public health service now in the treasury department and the food inspection service now in the department of agriculture. New bureaus should be added, and present bureaus should be enlarged.

The bureaus which it now seems might be transferred advantageously to the department of labor follow:

Life-saving service from the treasury department.

Bureau of public health from the treasury department.

Bureau of pensions from the department of the interior.

Bureau of education from the department of the interior.

Meat inspection service of the bureau of animal industry, department of agriculture.

Bureau of chemistry, foods, drugs, etc., department of agriculture.

Population and vital statistics from bureau of census, department of commerce.

A board of national defense consisting of the secretaries of labor, commerce, army and navy might advantageously link up the activities of each department in certain ways. The natural alliance of the army and navy to industrial training has been mentioned. The army is the means through which our young men should be given an equal opportunity to acquire technological knowledge. Receiving his sustenance in return for his work as a

soldier, an equal opportunity would be offered to every young man, however poor, to acquire knowledge of use to him in later life in raising his earning power. Such education should be pursued under the direction of the bureau of education of the department of labor. There is a further relation between commerce and higher labor standards which is vital. There are certain obstacles which must be overcome. To enforce sanitary standards necessary for health upon manufacturing and other industries adds to the cost of production in many cases. This injures not only our foreign trade but also the home market. Not only can foreign nations operating under a lower cost of production through neglect of sanitary standards take away our foreign trade, but they may close down our industries at home through importation of cheaper foreign goods. A bureau in the department of commerce should check up cost of production in this country and in foreign countries. A bureau in the department of labor should check up sanitary standards in the home industry and in the industry abroad. Tariff duties should be levied compensating the home industries for the increased cost of production caused by higher sanitary standards.

Positive Program

We now have the elements of a strong department capable of lengthening, broadening and deepening human life in the United States.

The victory is more than half won. We have a broad-minded, far-seeing man in the cabinet whose devotion to the interests of human life is well known. The natural-growth force behind a cabinet officer is in our favor. The possibilities for a constructive program of social progress lies in the new department of labor. This new department represents our national vitality because this department stands for the welfare of labor and in the United States we are all laborers, not only in the sense of laboring for self-maintenance but also as laborers together for the common good. It is with great satisfaction that I include the following letter from the Hon. William B. Wilson, secretary of the United States department of labor.

DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON

January 4, 1915.

DR. J. PEASE NORTON,
No. 460 Ocean Avenue,
West Haven, Conn.

My dear Dr. Norton:

I am in receipt of your favor of the 23rd instant, and have not found time until now to make response.

There are many things which the department of labor needs, and which we hope in time it will receive, in order to make its work as effective as it should be. Immediately preceding the French Revolution, Turgot, the great French reformer, put into the mouth of Louis XVI of France the following statement:

"God, when he made man with wants, and rendered labour an indispensable resource, made the right of work the property of every individual in the world, and this property is the first, the most sacred, and the most imprescriptible of all kinds of property. We regard it as one of our first duties, an act worthy of all benevolence, to free our subjects from every infraction of that inalienable right of humanity."

We have not yet reached the point where we are prepared to put into practice the idea of Turgot that the "right of work is the property of every individual in the world." The time will undoubtedly come when the individual suffering an economic loss resulting from large numbers of idle men who are willing to work, will be overcome by the development of practical methods which may be applied in such cases. To do this will mean not simply out-of-work insurance, but assurance of work. It will mean bringing the qualified man and the work together through a complete method of distribution in which municipal, state and federal branches of the Government will thoroughly coöperate. It will mean the handling of seasonal occupations in such a manner that seasonal laborers will be able to follow different occupations at different periods and in different places during the year. The Department of Labor should be furnished with means of working out these problems to a proper solution in all of their details.

The same is true with regard to safety, sanitation and hygiene, not only in places where laborers are employed but in the communities in which they reside and the homes in which they live.

The department should be given all of the means necessary for the promotion of industrial peace based upon industrial justice, not by compelling the employer to give wages, hours of labor, or conditions of employment contrary to his judgment, or compelling the workman to accept wages, hours of labor, or conditions of employment obnoxious to him, but by the process of bringing into the minds of each a better understanding of their rights and obligations to each other and to society.

I have briefly outlined but a few of the needs of the department. As I stated in the beginning, I do not expect that these things will all be supplied immediately,

but I sincerely hope that the development of public sentiment will ultimately place in the hands of the Department the necessary means for the successful working out of these vast problems.

Respectfully yours,
W. B. WILSON,
Secretary.

The industrial opportunity of the hour lies in the intensive development of our people. The agency is now at hand, the United States department of labor. What the department of agriculture has done for animals and plants, let the department of labor do for mankind. *Constructive economics* suggest the lines of effort, first, to give the opportunity to the young to learn how to do things which in later life will increase their incomes, and to discover what is best to do with the increased income—after all knowledge of the problems of the *depth* of life.

Second—to give the opportunity for those who want work to find work, to remove the narrow conceptions which permit child labor, wages below a minimum standard of living, and to ameliorate the evils of life by old age pensions, compensation for accidents, etc. There are problems of the *breadth* of life.

Third—in the great field of *length of life*, much may be done and little has been attempted. Here, death and disease play havoc and the awful waste which goes on passes comprehension. The horrors of the European war are no more than a drop in the bucket in comparison with the blood tax of pneumonia and tuberculosis. All relative values are lost sight of in the political realm. Elections succeed elections fought over petty issues—the tariff, the money question, and the thread-bare issues of the past. Completely forgotten are the real vital issues which will bring dividends into every family—a larger earning power, a higher standard of living, and longer and healthier lives. These issues are the issues of tomorrow, and when we who labor, wake, a newer and a finer meaning will lie in those grand old words—the "rights to life, liberty and the pursuit of happiness"—words copied by the founders of our government into our fundamental documents,—words which they had snatched red-hot from the philosophy of the French revolution. Not by destruction, like those in Europe who cannot reason together, but by construction and by cöoperation among all classes shall we successfully broaden, deepen and lengthen human life upon this earth.

THE IMPORTANCE OF RESEARCH AS A MEANS OF INCREASING AGRICULTURAL PRODUCTION

By M. B. Waite,

Pathologist in Charge, Fruit Disease Investigations, United States Department of Agriculture.

The great new feature of the modern progress in agriculture is the rapid increase in the utilization of science and the results of scientific research as a source of information and guidance in improving and perfecting agricultural methods.

Research in agriculture may be divided into two main classes: strictly agricultural research, and scientific research. The first type is concerned primarily with actual methods of growing and utilizing crop plants with animal production, etc. It takes agricultural methods developed empirically and subjects them to critical experimentation. It gathers the methods developed in various parts of the world and tests them out experimentally, under given conditions. It utilizes precepts developed in the sciences, or rather, tests their availability for use in actual practice, by trying them out in the field. It could, however, theoretically, be carried on in part without any help from science. As a matter of fact, at the present time it is becoming more and more influenced by scientific data. All such questions as depth and kind of tillage, varieties of crops to be planted in different localities, kinds of animals to use for certain purposes, depth and distance and time of seeding and planting, varieties suited for different sections and different purposes, rotation of crops, kinds and amounts of fertilizers to use, time and amount of water, when this is artifically applied, and, in fact, the development of all the various routine practices of actual farming come within its scope.

The second type is research in the sciences which have a direct bearing on and are helpful to the development of agriculture and agricultural methods. These sciences are principally chemistry, including physiological chemistry; physics, including soil physics; zoölogy in nearly all its branches, including entomology, animal

physiology and animal pathology; botany in most all its branches, including plant physiology, plant pathology and bacteriology.

Agriculture is so broad in its scope and requirements that it utilizes, in varying degree, and gets help from, nearly all the other arts as well as from the sciences. For example, modern agriculture utilizes, to a very large extent, engineering, architecture, manufacturing and transportation among the useful arts. It also utilizes mathematics, astronomy, meteorology, geography and geology among the sciences in addition to those mentioned above.

It has been observed, by many, that farmers, as a class, are conservative—that they hesitate to take up new ideas. This is a natural result of the old-time empirical method. The farmer was compelled to stick to the time-tried methods known to be successful by long experience. Any other course than this was to invite disaster.

Referring, again, to the strictly agricultural research work, no one can accuse the present investigators in this line of being conservative. They are hunting for something new all the time. In fact, they may even be accused, at times, of being too anxious for novelties in methods and of not giving the proper weight to the best empirically developed procedures. These investigators have, at the present time, three possible sources of information in perfecting agricultural routine processes: first, the old line empirical methods; second, the results of tests with growing crops under modern experimental conditions; and third, the data and results available from the different sciences.

We are now ready to answer the question as to why science has only recently come to the aid of agriculture, particularly why chemistry and the biological sciences have been of so little use to the farmer. It seems to me the real reason is very simple. It is because our knowledge of the sciences has been so imperfect and incomplete. No one knows better than the investigating scientist the fragmentary and incomplete nature of our exact knowledge. This is particularly true of the biological sciences. Take botany, for instance; here is a science which deals with plants and with plant life in all its various phases. Why has the science of plants, until recently, been of so little use to the cultivator of plants, and why has this science lately been utilized in so many different ways with such splendid results? It is because the science itself was weak. Only

fragmentary, isolated facts here and there had been worked out; only a few of its principles had been discovered.

Bacteria had been known and described to some extent since the days of Ehrenberg (1830). It remained for Pasteur, in 1862, to prove that they were the real cause and not the result of fermentation. He discovered the first bacterial disease, a silk-worm disease, in 1870. A year or two later, he proved that anthrax of cattle was caused by a bacillus. Burrill, in 1878, discovered that pear blight was caused by bacteria, the first discovery of a bacterial plant disease. Koch discovered the germ of tuberculosis in 1884. Since that time there has been a continual stream of new and important discoveries in bacteriology of immediate and practical benefit to agriculture.

The fungus diseases of plants have been known and described for one hundred and fifty years. The number has been added to continually until it runs up into the thousands. Many single species of both cultivated and native plants have from fifty to one hundred fungus enemies attacking them. Not until Millardet discovered the efficacy of Bordeaux mixture in the control of the vine mildew in 1883 and published his results in 1885 did we have a satisfactory and direct way of killing these fungus enemies or preventing their attacks on the host plant. A new word, "fungicide," had to be added to the dictionary.

One of the effects of the utilization of the various sciences in agriculture has been to bring to notice the gaps in the sciences. The demands of agriculture, therefore, for new knowledge in science have acted as a powerful stimulus to scientific men to take up many problems which might otherwise pass unnoticed. In this way agriculture has greatly stimulated certain lines of research, such as many problems in chemistry, including physiological chemistry, and many branches of botanical and zoölogical science, particularly in pathological and bacteriological lines. Agriculture, therefore, has not only drawn heavily on scientific results, but has in turn enormously stimulated intellectual activity in these lines. In a much more direct way, however, it has fostered and encouraged scientific research by financing and supporting it. It is safe to say that there is far more scientific work being done during the current year in botany financed by agricultural appropriation bills than all the other research botanical activity combined, whether amateur

or professional. What we need is more real science. That, I think, soon becomes apparent to all engaged in attacking problems of agricultural production.

Chemistry has done great things for agriculture. It has furnished the methods of fertilizing the soil and of securing these fertilizers from the earth,—potash, phosphoric acid, and nitrogen. It has helped us in compounding a balanced complete fertilizer, varying to suit soil conditions and crops. It taught us how to feed a balanced ration to our stock. It provided simple tests by which the farmer can determine the amount of butter fat in any given sample of milk and thus furnished a guide for distinguishing between productive and unproductive animals. Chemistry, combined with plant-breeding methods, has increased the sugar content of sugar beets by furnishing a method for determining the high sugar content of certain specimens to be used for seed production. It furnishes the basis of much agricultural experimentation and assists in nearly all lines of research.

The science of zoölogy has contributed much information of use to agriculture. Perhaps in no way has it been more useful than through the researches on the diseases of domestic animals and the methods of controlling or mitigating these diseases. Many of these diseases are not only contagious to the animals, but are doubly serious because communicable to man. Zoölogical science has furnished the basis for the elaborate system of meat inspection, of dairy inspection, and of quarantine operations. The introduction of the tuberculin test in eliminating tuberculosis from dairy herds may be cited as a fine piece of work. In some animal diseases, such as the foot and mouth disease and swine plague, we are still in the condition of not enough science. In neither of these contagious diseases has the germ or the real cause of contagion been discovered. Mendel's law and the principles of animal breeding worked out scientifically have given an entirely new status to this art. Results can be figured out scientifically by mathematical and biological rules and a prediction made beforehand as to what may be expected from certain crosses.

The science of entomology has been of the utmost utility to farmers in crop production in recent years. Economic entomology may be said to date back for at least two generations. The control of insect pests is perhaps one of the greatest contributions of science

to the farmer. A few striking examples may be used to illustrate the success that has been achieved in this line.

About forty years ago the potato bug or Colorado potato beetle started in to simply eat up or clean up the potato crop of this country. The entomologists readily fixed up a poison to kill him. Paris green, either sprayed or dusted on the potato plants, quickly and effectively solved the problem. The codling moth or apple worm was thought by many to originate spontaneously within the fruit. The entomologists have taught us that it is the larva of a harmless-looking little gray moth. They have worked out the life history of the insect and have given us a spraying routine with arsenical poisons by which practically complete control is maintained. The commercial apple orchardist who follows the rules laid down by the entomologists can now estimate his crop with reasonable certainty as far as this pest is concerned, as soon as the fruit has set in May. The apple buyer can know that he will get reasonably sound fruit throughout the barrel from a sprayed orchard. The good housewife can serve baked apples to her family or guests without the danger of a disgusting and nauseating worm being found when the apples are opened. One can now eat raw apples in the dark. It is safe to say that without a remedy for this one pest alone, commercial apple culture in this country could not possibly exist in anything like its present proportions. Our 86,000,000 barrels of apples in the crop of 1914 could never have been produced or marketed. With this pest controlled, apples are not only shipped to all parts of the country from the apple producing centers, but are sent all over the world. The Hessian fly has been known to destroy half to two-thirds of the wheat crop in the wheat-growing districts. The problem was attacked by the entomologists and the life history of this insect fully worked out, with the result that a practical, satisfactory remedy was developed, the utilization of which entails no additional expense to the farmer. The remedy consists merely in deferring the planting of the wheat until after the emergence and death of the adult flies. The cotton boll-weevil entered this country from Mexico about twelve years ago and its effects were so severe that it threatened the destruction of the entire cotton industry of the United States. Scientific entomologists attacked the problem vigorously and by means of a thorough investigation of the life history and habits of this pest found a way of getting around

it. In the course of this work it was learned that the critical period in the life history of the weevil occurs during the winter. It is very rare that more than three per cent of the weevils in the field in the fall survive to attack the crop the following year. The first step is to greatly reduce this three per cent by the destruction of the remains of the cotton plants in the fall after the crop is harvested. The advantage obtained by this means is followed up by procuring an early type of cotton, planting early, and pushing it to early maturity during the following season. By this means, production has been maintained from 50 per cent under unfavorable conditions to nearly or quite a full crop under favorable conditions.

The science of botany is being utilized in so many different ways in the establishment of new methods in agriculture that to attempt to enumerate even the different lines would not be within the scope of this article. Without minimizing the important results that are being secured through the new methods of plant breeding, including the application of Mendel's law and of other methods of crossing plants based on scientific knowledge, and without attempting to include the many helpful discoveries in plant physiology, it may again be pointed out, as in case of zoölogy, that some of the most marked triumphs have been secured in the control of plant diseases, particularly in case of the fungus and bacterial diseases.

Previous to 1885, the farmer, fruit grower, or gardener was practically at the mercy of the fungus pests on his crops. The losses are still very large. It has been estimated that all plant production in this country is annually reduced from 20 per cent to 25 per cent through plant diseases, and there is considerable foundation for this estimate. When we realize that we are dealing with a crop worth annually between six and seven billion dollars on the farm, the magnitude of this loss is appalling. Only a part of this can, of course, ever be reached and prevented. Many diseases are physiological, produced by the effect of climatic and soil conditions difficult or impossible to change. In the irrigated regions of the West, new types of physiological diseases have caused serious troubles in the orchards of deciduous fruits and in the orange groves. It may take years of careful research to even find out the cause of some of these troubles, and they appear to be difficult to remedy even when the cause is thoroughly known.

On the other hand, the fungus diseases of plants have yielded to research during the last thirty years in a manner that is really marvelous. The black rot of the grape, a native disease on American wild grapevines, attacked our rapidly increasing grape industry in the Eastern United States in the early '80's. The discovery of Bordeaux mixture in France by Millardet, which shows the international character and value of research, opened up new possibilities. The department of agriculture at Washington started experiments in 1886 and within the next four or five years gave to the grape growers a complete and successful routine treatment by spraying through which from 95 per cent to 98 per cent of the crop could be saved. This treatment is the very basis of the grape industry. Without it the vines would bear only ragged and unsightly bunches scarcely fit for shipping to market. The solid, well-filled bunches of smooth, bright berries of our American grapes which are shipped by the thousands of carloads annually can be claimed by plant pathology as one of its triumphs.

In much the same way, by investigating the life history of the fungus parasite, finding out its time and method of infection, and by testing with spraying mixtures, most of the fungus diseases of the apple, pear and peach have been brought under control. Apple scab, bitter-rot, black-rot and leaf-spot, pear scab, fruit spot and leaf-blight are entirely under control by routine spraying methods. The peach, with its serious disease known as brown rot, and the scarcely less serious black spot or scab, for a long time puzzled the plant pathologist, not because the character of the disease was mysterious, but because the available copper and sulphur fungicides were too injurious to the foliage. The problem was completely solved, however, by the discovery of the self-boiled lime-sulphur, which can be sprayed on to the peach without injury and which kills and prevents the fungi. By combining this, as in most spray treatments, with an arsenical insecticide, such as arsenate of lead, a complete spraying routine for the insect pests and fungus diseases of this fine fruit is now available. This benefits not only the peach grower, but every one interested in the peach business and the consumer as well. The sprayed trees yield a far better and more reliable crop, of higher grade, more perfect fruit, to the peach grower. The peaches handle and ship better in the refrigerator cars and are more satisfactory for the wholesaler and jobber. The retailer finds

that the sprayed peaches stand up and keep in condition for a longer time while he is selling them, instead or rotting on his hands and proving a disappointment, and the consumer ultimately gets more luscious peaches to eat.

Production of potatoes, cantaloupes, celery, and even tomatoes has been greatly helped through spraying methods devised against the fungus pests of these vegetable crops, and through other methods of control worked out through scientific research.

There is a family of parasitic fungi that attacks many species of plants, producing dark, powdery masses of spores in such abundance that they are called the smuts. The various species of this family attack a great variety of plants, but several species attack our great cereal crops. They produce a smut of Indian corn and the cereal smuts. One botanist has estimated that the annual losses from the corn and cereal smuts in this country exceed, in amount, all the taxes that are collected, both state and national. For most of these smuts the science of plant pathology has furnished a complete and satisfactory routine treatment, which is applied at a very small cost. It consists in disinfecting the seeds. In most cases it consists in sprinkling a little formaldehyde water over the seeds and covering them with sacks for a few hours. In one case, not controllable by chemical disinfection, namely, the loose smut of wheat, the remedy consists in dipping the seed for thirty minutes in hot water at 130 degrees F., hot enough to kill the fungus but not to kill the seed. A somewhat similar method, namely, dipping in formaldehyde water, has been found to be the remedy for potato scab and for a number of other potato diseases.

The control of plant diseases, however, is by no means limited to spraying with fungicides or to disinfecting the seeds, tubers, cuttings, etc., by chemicals and otherwise. Many diseases are controlled only by eradication methods. In case of the contagious peach yellows, the entire tree has to be pulled up, as soon as it is stricken, for the benefit of the rest of the orchard, and the community. In case of pear blight and apple cankers a thorough local eradication of the diseased spot is necessary, but not the destruction of the rest of the tree. In this disease, which is bacterial in its nature, the most important feature of the control method consists in finding and eradicating the cases of hold-over blight, where the germs live over winter to attack the trees the following spring.

In 1905, pear blight threatened to destroy the entire California pear industry. During the five years preceding it had destroyed about one-third of all the pear plantings in the state. The application of these methods, with, however, only a moderate degree of thoroughness, resulted in saving the greater part of the industry from destruction. California still ships her canned Bartlett pears all over the world.

Many of our worst and most destructive plant diseases have been imported from the old world. Some, like the chestnut bark disease and the citrus canker, are very recent importations. Plant pathologists have discussed, for several years, the advantages of supervision over plant importations. Formerly we have had no law by which plant diseases could be excluded from entry. After some conspicuous cases of recent occurrence, Congress passed the federal quarantine act. This provides for a board of scientists, known as the federal quarantine board, and gives the secretary of agriculture very wide authority in excluding, not only plant pests, but the importation of any plants or seeds, etc., which may be considered dangerous. We are now trying to shut out, from this country, several potato diseases from Europe. We are endeavoring to prevent further entrance of citrus diseases, by excluding the importation of citrus nursery stock. We are trying to keep out further importations of the European white-pine blister rust which threatens our white-pine forests with destruction. Whatever good may come from this work goes back primarily to scientific research on plant diseases.

In discussing the triumphs of plant pathology I ought not overlook some of the difficulties and failures. Quite a number of bacterial diseases of plants have been discovered, but in only a few cases are the remedies or methods of control well worked out or entirely satisfactory. The root diseases of plants are either little known, or, if known, little has been accomplished in the way of their practical control. In many of these difficult problems in plant pathology, investigators have turned to a different method of attack, namely, the breeding and selection of resistant varieties. In some cases, as in the cotton wilt of our southern states, signal success has been obtained. I should not, however, convey the idea that all plant diseases have been brought under control. Many problems, like the crown gall of fruit and other trees, the root rots,

the new citrus canker, the chestnut bark disease, and numerous others, still attack vegetation unchecked, or only partly controlled, or, in case of the citrus canker, controlled by heroic methods, such as burning up the entire tree when only a single leaf is affected.

I have mentioned earlier in this paper chemical investigations of the soil. At first, that was thought to be the important problem in soil studies. Later it was shown that the physical properties of the soil were as important, or possibly more important, than its chemical composition. Still later, within the last twenty years, it has been realized by investigators that the biological properties of the soil are even more important than either its chemical or its physical properties. The soil under our feet is teeming with bacteria, with fungi, with algae and with microscopic animal life, chiefly nematodes. The species of the latter alone run up into the thousands. This branch of science has only been entered upon. It may be scarcely said to have been exploited at all. It is no exaggeration to say that a cubic foot of ordinary garden soil presents more unsolved problems in biology than the entire solved problems up to the present time and these problems are more difficult than the building of the Panama Canal, including both its engineering and biological achievements—more difficult than wireless telegraphy, than submarine or aerial navigation, for these latter have in part been solved. If we may judge the future from the past, while great things may be expected from soil bacteriology and soil biology during the next hundred years, at the end of that period new problems just as important will be clamoring for solution. One strikingly important thing has already been brought out in soil bacteriology. In this case the discoveries are partly linked with plant physiological discoveries. I refer to the nitrogen assimilating organisms in the root tubercles of the leguminosae. It has been known for over a hundred years that clovers and some similarly related plants possess a remarkable power in renewing soil fertility when these plants are plowed under for the growing of subsequent crops. It was finally discovered that this property depended on the presence of minute tubers or tubercles that occur abundantly on the roots and that the real function was performed by a tiny bacillus which lives in these tubercles. The clover plant easily furnishes the sugar as the necessary food for the bacteria. The bacteria living in the tubercles are able to force the free nitrogen of the air into

chemical combination and build up nitrates subsequently readily converted into proteids, the most valuable food of both plants and animals.

Still later investigations have developed practical methods of artificially cultivating and distributing these germs for soil inoculation. A field which had never grown alfalfa cannot ordinarily be successfully planted to this crop. When soil is supplied with the proper strain of the root tubercle bacillus, alfalfa can be at once successfully grown. In actual practice the germs from liquid cultures are mixed with a little partly dried soil and this is sown over the surface and immediately harrowed in. In some cases the alfalfa, or other leguminous seeds, may be coated with the culture. In introducing a new leguminous crop, like alfalfa in most sections of the eastern states, soy beans from Japan, hairy vetch and other special crops of the pea, bean and clover family, this process gives us at once command of the situation. It explains the cause of many failures in the past.

The results of the new discoveries and the continual introduction of new methods have been to place agricultural experimentation on a much higher plane. It has become more and more necessary for the worker engaged in strictly agricultural research to have at least sufficient knowledge of the sciences to draw into his service all their available data. Agricultural research is giving more and more opportunity for the use of the highest brains and intellect. More than this, the farmer, himself, instead of leading a life of drudgery or carrying out a few simple routine processes, finds himself engaged in an intellectual occupation. This is particularly true of fruit and truck farming and the growing of special crops but the principle pervades all farming. We hear much these days about the agricultural uplift that is now going on, and the various influences that are bringing it about. I feel sure that a careful analysis will show that the biggest single factor which is producing this uplift, and the greatest hope for the future of this movement, is the application of science to the problems of crop production.

AGRICULTURAL EDUCATION AND AGRICULTURAL PROSPERITY

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American agriculture is just emerging from the pioneer stage. As long as there was an abundance of free land over which grazing and grain growing were rapidly and extensively spreading, so much livestock and foodstuffs were cheaply produced by the simplest methods that their prices were so low that the farmer had no incentive to seek special training for himself or his sons or to encourage his children to remain on the farm. It is true that inventive genius came to the farmer's aid and provided him with machinery for this extensive agriculture, by which the cost of producing staple crops per bushel or other unit of measure was very greatly reduced. Thus the American farm worker became more efficient than the farm worker of the older countries in the sense that he was able to secure the largest average production per man, though his production per acre was relatively low.

With free land so reduced in amount and availability that its utilization has practically ceased to have any influence on our agricultural production, the economic conditions of our agriculture have materially changed. Production is no longer running so far ahead of demand that our markets are glutted with agricultural products. For this reason alone there would have been a considerable advance in price of these products in recent years. But there have been many causes for their rising prices. When free land was practically exhausted, the price of farm lands began to rise and our last census showed a remarkable advance in farm values. The rapid wearing out of the great ranges for domestic animals, the reduction of yield per acre in the prairie states under a single crop system, the widespread need of fertilizers, the increasing cost of bringing new land into cultivation by clearing, drainage or irrigation, the absolute necessity for more careful and complicated systems of culture and cropping are among the important matters directly relating to agricultural practice which are now affecting

the prices of our farm products. To these must be added the economic and social influences which have caused the advance of prices generally at home and abroad. A complicated and expensive system of distribution has forced the ultimate consumer to pay high prices for his foodstuffs. The great rise in the wages of laborers employed in towns has made farm labor scarce and more expensive. The general rise in the standard of living has brought with it the practical necessity for a greater variety of expenditures on the farm, and among other things is the burden of expensive sanitary regulations. The changes in systems of farming in different regions brought about by the spread of agriculture westward and the growth of industrial population in farming regions have necessitated various new expenses. The transfer of agricultural and home industries, such as butter and cheese making, from the farm to the factory and the consequent narrowing of the sources of farm income must also be considered.

Meanwhile the steady shifting of political and business affairs from an individualistic to a socialistic basis has profoundly affected the status of the farmer. Everybody else has been constantly making wider and wider combinations. The farmer has thus far very largely stood alone, though more and more he has been compelled to deal with organizations rather than with competing individuals. Blindly clinging to the old ideals of life, he has been put at an increasing disadvantage relatively as regards his place in the world. For a time the simple life and freedom of the pioneer seemed to him to overbalance all the advantages of urban life. But now the restraints of modern civilization are becoming more clearly apparent and he begins to realize that other classes have passed him in the race. The natural effect of such an awakening is to create a profound dissatisfaction with country life and an effort to escape from it at the earliest favorable opportunity. If he overcomes this temptation and retains faith in the possibility of an elevating and satisfactory life in the open country he becomes an active advocate of measures for the improvement of the economic and social conditions of the farm.

Fortunately in recent years some of the best things in modern civilization have come much closer to the farmer. The telephone, trolley car, railroad, automobile, rural free delivery of mail, and the parcel post have to a considerable extent destroyed the isola-

tion of the farmer and made possible an enlargement and enrichment of his business and social life. They have brought him much information about the changes that are going on in the world and his need of a broader horizon of knowledge and experience. He sees now, as never before, that if he is to be a man among men in the modern world he must have a broader general education and if he is to be highly successful in the practice and business of agriculture on high-priced land with high-priced labor and with the multifarious expenses of the well-equipped farm and home he must have some definite technical education along agricultural lines.

Therefore, while there are many other things which will be required to put our agricultural communities in satisfactory condition, the fundamental need is a better system of education. This means in the first place a radical reorganization and redirecting of the rural common schools. As agriculture spread out over our vast territories the school teacher went with the farmer over a part of the field but in some large regions was almost wholly absent. Hence great bodies of our farming people have been wholly or nearly illiterate. The campaign against illiteracy, which has gone on with increasing ardor and success for a century, but which has not yet entirely covered the ground, has been waged on the theory that we must have as many schools as possible. Hence for a long time school districts were greatly multiplied in the effort to bring the schoolhouse within the walking capacity of the smallest pupil. In many regions this multiplication of school districts was accompanied by what was considered the essential principle of absolutely local control of the school. Thus the number of petty school officials was indefinitely increased and each school was largely a law unto itself.

Meanwhile the urban communities were using their increasing wealth in building up a strong and highly developed school system and taking into their employ practically all the trained teachers. The country schools therefore while not altogether fulfilling their primary purpose of abolishing illiteracy have relatively fallen far behind the city schools in their range and efficiency. Moreover the subject matter of their curriculum and the methods and attitude of their teachers have been mere imitations of the city schools. Thus as far as the country schools have had any definite influence on their pupils it has been to make them dissatisfied with country life and lead them away from the farm.

While in recent years there have been widespread efforts to remedy the defects of the rural schools, the great educational problem of our day still is to devise a way of equalizing the educational opportunities of country and city children. It is now obvious that this cannot be done on the principle of local control and financial support. Nothing less than state control and the use of state and national funds for the education of all the people will ever give the country children elementary, secondary and higher education in the same way and to the same extent that under our present school system it is provided for city children.

Our educational situation is only a very fundamental and universal example of what is true with reference to the whole country life problem. This can never be solved by the farmers alone. It is a task for our whole people. Sentimental reasons alone will not keep any large body of people in the open country. If the child born on an American farm finds out as he grows up that he cannot get a satisfactory education, have a good chance to own property or live an interesting life in the country, why should he stay there?

The American farmer or farm laborer is not a serf or peasant attached to the land. He is free to move about or change his occupation like all other Americans. He surely does not exist simply to produce cheap foodstuffs or clothing for city people. If he stays in the country it must be because he is convinced that considering his ability and tastes he can personally get the most out of life there. Therefore if city people really feel that they must have a certain number of farmers to support their life and make good business conditions it is absolutely essential under conditions existing in a free democratic nation that they shall contribute their part toward making the home, business and community life of the country people satisfactory to those people.

The manufacturers, bankers, merchants, railroad men, and professional workers can each contribute to this end in various ways. But in any case a fundamental thing is a good system of education for country people.

Present-day pedagogy holds that every child should be trained with definite relation to his physical environment and the common arts on which material civilization depends. What may be called the industrial element should therefore be a part of every system of public education, apart from more strictly vocational training.

This has already led to the widespread introduction of nature study, gardening, cooking and sewing into elementary schools, and natural science, agriculture, wood and metal working and home economics into high schools. Thus far such instruction has chiefly reached children in urban communities. It should be given to the masses of our children in both city and country.

But such general industrial training is not sufficient to fit boys and girls for vocations. There must therefore be added courses and schools for definite vocational training, including both secondary and higher schools. This is being done more and more for mechanic arts, engineering and agriculture.

Public interest in the development of technical and vocational education in this country is rapidly growing. It therefore seems appropriate to include in this article a brief survey of the history and present status of agricultural education.

The American system of agricultural education has been developing for over fifty years, and has been of great service to thousands of farmers but has not yet affected the great mass of them.

Aside from a few scattering efforts at elementary education in agriculture, the first broad movement in that direction was in the establishment of agricultural colleges, begun by the states and nationalized by the Land Grant Act of 1862. At the end of twenty-five years the land grant colleges had become well established in most of the states but their agricultural departments were relatively weak and attracted comparatively few students. This was partly because the agricultural practice required at that time was so crude, but partly because there was so little definite knowledge to teach.

Then came the establishment of research departments mainly in the agricultural divisions of these colleges, under the title of agricultural experiment stations. These stations, also, were begun by the states and nationalized by the Hatch Act of 1887. In about ten years after their establishment they had collected through their own investigations and through the reports of similar institutions abroad a sufficient body of knowledge to enable the agricultural colleges to formulate and undertake effective courses of study in various branches of agriculture. Then students began to increase in number and quality and these colleges entered on a prosperous career.

From the colleges also emanated the beginning of a system of

extension work in agriculture for the benefit of the farmers at their homes. This was done through the free distribution of station bulletins and the holding of local farmers' meetings usually designated "farmers' institutes."

Alongside the colleges and in increasing measure in coöperation with them were developed the United States department of agriculture as a research and extension agency, and the state departments or boards of agriculture, performing to a certain extent similar functions.

In the earlier days much of the instruction in agriculture at the colleges was quite elementary. As the number of students increased the requirements for admission to the regular college courses were raised, there was more specialization of instruction and real college courses in agriculture were developed. To meet the growing demand for the more elementary instruction, short courses not leading to a degree were offered and finally secondary schools of agriculture were definitely organized at some of the colleges to supplement their college courses.

These provisions for secondary courses in agriculture did not long satisfy the people interested in agricultural education. Separate agricultural schools began to be established, courses in agriculture were added to the curriculum of ordinary high schools, and efforts were made to have instruction in subjects definitely related to agriculture introduced into the rural elementary schools. This elementary instruction often took the form of nature study and school gardening, but as time went on an increasing amount of instruction definitely relating to agriculture was developed.

For many years the research and teaching along agricultural lines in all classes of institutions giving attention to these subjects dealt almost exclusively with problems of agricultural production. Within the past decade the vital importance of educational work in rural engineering and rural economics and sociology has so impressed itself on our agricultural leaders that investigations and courses of instruction along these lines have been rapidly developed and enlarged.

The necessity for better training of our agricultural teachers and investigators has also become very apparent. The normal schools have undertaken to do this for elementary teachers. Congress has specifically authorized the agricultural colleges to use a

portion of their federal grants for this purpose. These colleges are quite generally establishing departments of agricultural education. Graduate courses in agriculture are now offered in many of the agricultural colleges. A short-term graduate school of agriculture is held biennially under the auspices of the Association of American Agricultural Colleges and Experiment Stations with a view to stimulating greater interest in the thorough training of agricultural experts. This association is also giving systematic attention to the improvement of agricultural teaching through its standing committee on agricultural instruction which makes an annual report on this subject that is printed and widely distributed. The National Education Association has a section which is giving regular attention to this subject. A National Association of Agricultural Teaching has also been organized. The United States bureau of education and the department of agriculture are employing specialists in agricultural education who are studying this matter throughout the United States and abroad and are issuing bulletins on the pedagogical problems involved in this work and publications containing subject matter organized with special reference to the requirements of the schools along this line.

As already indicated, extension work in agriculture has been going on throughout the country for many years but within the past twelve years has had a very interesting development. When the Mexican cotton weevil began to spread over Texas and it seemed clear that it would extend its ravages to other portions of the cotton belt urgent appeals for help came to the United States department of agriculture. Among the agencies employed by the department to meet this situation was the establishment of a community demonstration farm at Jewett, Texas, under the direction of Dr. Seaman A. Knapp to show "how cotton could be raised despite the boll weevil." This enterprise was successful and similar demonstrations were carried on in other places and extended to other crops with a view to aiding diversification of agriculture in the South. Congress made special appropriations for this work in territory likely to be affected by the boll weevil. The General Education Board, endowed by Mr. Rockefeller, became interested in Dr. Knapp's operations and entered into coöperative agreement with the department, under which large sums from their fund were used for demonstration work in the southern states outside the cotton belt. The states,

counties, local associations and individuals were also encouraged to contribute to this work and their financial support came to be a large factor in the enterprise. The scope of the work, especially along educational lines, was gradually extended to include many matters relating to the economic and social conditions of the farmers and their families, as well as the rural communities in general.

As the work grew it was found desirable to locate agents in the several counties, who should arrange for and supervise the farm demonstrations, hold meetings of farmers at the demonstration fields or elsewhere, visit the farmers at their homes, give out information through the local press, secure for the farmers the publications of the national and state departments of agriculture and the state agricultural colleges and experiment stations, and in general give them and their families advice and assistance along the lines of agriculture and home economics. Existing farmers' organizations were utilized as mediums for the work of the county agents and where such organizations were not available groups of farmers were formed for this purpose.

The importance of interesting the girls and women on the farms was also recognized. Canning clubs were organized among the girls. The members were encouraged to raise tomatoes or other vegetables, were taught how to can the product and were aided in selling the canned goods. At meetings of the clubs not only the matters relating to their work were discussed but also many subjects relating directly to the work of the household. Naturally the women often became interested in the work of the club girls, they were invited to hold their meetings at farm homes, and the women in charge of the clubs were made welcome in such homes. Thus the way was opened to do work for the benefit of the farm women themselves.

The wide success of this demonstration work in the South naturally led to an effort to have similar work carried on in the northern and western states. The office of farm management of the bureau of plant industry therefore undertook work of this character in the North.

Meanwhile the agricultural colleges in various parts of the country had increased the variety and amount of their extension work in agriculture. Special features of this new work were movable schools and the running of railroad trains which carried agricultural exhibits and lecturers who explained them at numerous

stations along the route. The colleges were also drawn into closer coöperation with the demonstration work of the department of agriculture. They formed a special extension section in their national association and undertook to secure from the federal government financial aid for their extension enterprises.

The final result of this effort was the passage of the Smith-Lever Extension Act of May 8, 1914. This provides an annual appropriation of $10,000 to each state to be used by its agricultural college in extension work in agriculture and home economics. The second year an additional amount of $600,000 may be allotted to the states on the basis of their rural population provided they contribute an equal amount from sources within the states. This additional amount is thereafter to be increased on the same terms by $500,000 annually for seven years, after which $4,100,000 will annually be available for like distribution to the states. If the states fully meet those conditions there will ultimately be an annual fund of $8,680,000 for the extension work of the colleges. This money is to be spent in accordance with plans made by the colleges and approved by the secretary of agriculture, who is charged with the general supervision of these funds and the administration of the law. The act also provides that this extension work "shall be carried on in coöperation with the United States department of agriculture."

On the passage of this act the secretary of agriculture decided to bring all the extension work of the department into coöperation with the state agricultural colleges in order that thus there might be a unified system for such work throughout the United States. For this purpose "a general memorandum of understanding" was drawn up and signed by the secretary of agriculture and the presidents of the colleges. This provides that the college shall bring all its extension work in agriculture and home economics into a single division with an administrative head and that the department will make a similar arrangement within itself and will then carry on all its extension work in any state which has entered into this agreement through the extension division of the college.

At present this business of the department is carried on by a states relations committee, but in the appropriation act which goes into effect July 1, 1915, Congress has made provision for a states relations service, which will represent the secretary of agriculture

in all his relations with the agricultural colleges and experiment stations. This service will include the present office of experiment stations and offices of extension work, agricultural instruction, and home economics.

The present status of the system of agricultural education being developed in the United States, exclusive of Alaska and the island territories, may be briefly summed up as follows:

Researches covering practically all branches of agriculture and country life are being carried on by the United States department of agriculture and agricultural experiment stations in all the states. These investigations have thus far been chiefly along the lines of agricultural production but are now being rapidly extended into the field of rural economics and sociology.

Graduate instruction in agriculture is given at a considerable number of the state universities and agricultural colleges and through a national summer school of agriculture.

Collegiate instruction in agriculture is given in state agricultural colleges in all the states and by a number of private colleges. In 1914 there were 16,446 students in the regular college courses in agriculture.

Secondary instruction in agriculture is given in short courses and schools organized in the agricultural colleges, in 124 separate agricultural high schools, in 469 public high schools receiving state aid for this purpose, and in a considerable number of other high schools.

Elementary instruction in agriculture in the rural schools is required by law in thirty states and is encouraged by the departments of education in practically all the states. Such instruction is also given in a considerable number of private schools. Nature study, school gardening, and some instruction directly relating to agriculture is given in many city schools. Owing to lack of trained teachers and the poor organization and equipment of the rural schools, effective instruction in agriculture is as yet given in only a relatively small number of these schools.

Many of the normal schools have undertaken the training of teachers in elementary agriculture and home economics but not a sufficient number of their graduates have gone into the ordinary rural schools to affect the teaching there in any large way. The agricultural colleges have in recent years aided in the training of

rural teachers through summer schools. They have also established departments of agricultural education for the professional training of high school and college teachers of agriculture. There is still, however, a great lack of well-trained teachers in all grades of agricultural schools.

A comprehensive system of extension work in agriculture and home economics is now being spread over the United States under the supervision of the state agricultural colleges and the United States department of agriculture and with the coöperation of the state departments of agriculture and education, rural school officers and teachers and organizations of farmers and business men. County agricultural extension agents are now at work in over 1,000 counties distributed through all the states and those agents are assisted by a large force of experts in the various branches of agriculture and home economics sent out by the state colleges and the United States department of agriculture.

While the control of the American system of agricultural education, like other forms of education, has been vested in the states and local authorities, the federal government has contributed in important ways to its development. The bureau of education of the department of the interior has supervision of the federal funds granted to the land-grant institutions, of which the agricultural colleges are a part. In recent years the bureau has also studied the special problems of agricultural education and disseminated considerable useful information on this subject.

The department of agriculture, through its office of experiment stations, has broadly studied problems regarding the organization and work of institutions for agricultural education and with the coöperation of the other bureaus has published considerable material on the subject matter of agricultural instruction. It has also supervised the federal funds granted to the agricultural experiment stations, published a comprehensive review journal of the world's literature of agricultural science and aided the stations in many other ways. And now the newly created states relations service will administer the funds granted to the colleges under the Smith-Lever Extension Act, will carry on a large amount of extension work in coöperation with the colleges and will aid materially in the development of a great system of extension work in agriculture and home economics throughout the United States.

Our system of agricultural education has been further coordinated and nationalized through the Association of American Agricultural Colleges and Experiment Stations. This body works through delegates from the state colleges, the bureau of education and department of agriculture, who hold annual conventions and publish proceedings. There are also standing committees on graduate study, instruction in agriculture, college, station and extension policy and organization, which work between the conventions and prepare reports for the proceedings. There are also joint committees of the department of agriculture and the association on their mutual relations and projects, and a joint board of editors for the publication of the *Journal of Agricultural Research.*

This brief summary of the American system of agricultural education is perhaps sufficient to show that it is broadly planned to cover all the technical and practical phases of agricultural practice, the relations of the farmer to the business world, and the organization and life of rural communities. When carried to completion it will provide definite vocational training for our agricultural experts, teachers, and the great mass of our farmers.

But it will do much more than this. It will be, and is already to a considerable extent, the foundation and inspiration of a great intellectual awakening among the agricultural people. It aims to change their viewpoint from the past to the future, to bring them into touch with all the progressive and uplifting influences of the modern world and to broaden immensely their outlook on business and social affairs. If it can do this in a broad way and thus make the great mass of people living in the open country intelligent and progressive it will be one of the largest factors in establishing the perpetuity of our democratic institutions.

In the present stage of the development of the American system of agricultural education, special stress should be laid on the following things:

(1) The provision of suitable means for the scientific and practical training of teachers of agriculture and home economics for the elementary and secondary schools and of the county agents and other extension workers.

(2) Adequate supervision of the teaching of agriculture and home economics in the rural elementary and secondary schools by trained experts connected with the state departments of education who thoroughly understand the problems of country life.

(3) The encouragement of the consolidation and grading of rural elementary schools with a view to the more efficient organization and equipment of practical instruction in agriculture and home economics, as well as their general improvement as educational agencies. Elementary instruction in agriculture and home economics should be given chiefly through practical exercises in gardens or work rooms connected with the schools, supplemented by projects carried on at the home farm or house and supervised by the teacher. This requires better teachers and more equipment than the ordinary rural schools have at present. It is expected that the club work which the extension agents are developing and which should be closely linked with the rural schools will greatly aid in making the instruction in these schools more practical.

(4) The use of state funds to aid in the establishment of high schools in rural regions, in which agriculture and home economics shall be taught by teachers trained along these lines, or the introduction of efficient courses in these subjects in town high schools frequented by country boys and girls. Every child should have at least free tuition in a high school located somewhere near his home. We shall find it necessary to rely chiefly on the high schools for most of the instruction in agriculture and home economics which the farm children will receive.

On its material side this system of agricultural education will undoubtedly do much toward making farming more profitable. It will also greatly increase agricultural production. The wide application of the knowledge acquired by our agricultural institutions would easily double the average yield of our staple crops on lands suited to their culture. This has been demonstrated by the field tests of the experiment stations, by the results obtained by the corn club boys in the South, and by the actual yields in such European countries as France, Belgium and Germany, where economic conditions have promoted intensive cultivation and scientific methods have been widely applied. In addition to this the utilization of vast areas of arable land in our southern states now wholly or largely neglected, the reclamation of the 70,000,000 acres of swamp and wet lands which can be drained, and the irrigation of many millions of acres of the now arid lands of the West will eventually swell our agricultural production to aggregate amounts far beyond

those of today. There is therefore good reason to believe that the American farmers will continue indefinitely to produce an abundant food supply for our increasing population.

Whether the consumers in our cities will be able to obtain food at reasonable prices, after the farmer has received a fair reward for his labor and capital, will depend on the world's food supply and on the cost of distribution after the food leaves the farm.

THE EFFICIENCY MOVEMENT IN ITS RELATION TO AGRICULTURE

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Branches of Agricultural Science

During the past century dozens of new sciences have sprung up in connection with agriculture, but these can be grouped into three general classes.

First we have the technique of production, involving many recently developed sciences, such as agronomy, soils, plant physiology, genetics, animal husbandry, dairy husbandry, technical dairying, etc. The large number of new sciences in this phase of agriculture is indicative of the enormous amount of money and time that has been given to this phase of our fundamental industry.

The second general branch of agriculture relates to the economics of production. This branch of science is generally termed farm management. It is very new and as yet poorly developed, though considerable progress has been made within the last decade in the discovery and application of its principles.

The last general phase of agriculture relates to the distribution of agricultural products from the farm to the consumer. Its various phases are comprehended under the one general term marketing. The importance of this branch of agriculture has always been recognized, but it is only in very recent years that it has been given serious consideration by the agricultural authorities of the country. It is the most complex and most difficult branch of agriculture. Its possibilities are greatly overrated by many enthusiasts and are perhaps not fully understood by any of us.

Take, for instance, a crop like apples. One even hears the remark that there is no such thing as overproduction; the trouble is underconsumption. The apple crop occupies less than 1 per cent of our crop area in this country, and there is probably fifty times as much, more or less, adapted to this crop not now devoted to it; yet at the present time enormously more apples are produced than can

find a market, and the business is temporarily distinctly unprofitable. It is hardly probable that any one would be bold enough to claim that if the marketing of apples could be simplified and the cost reduced to a minimum that this crop, which when prices are good is distinctly profitable, would be in no danger of overproduction. Experience clearly shows that in the case of all those crops that occupy a small acreage but which at times bring a very large income per acre, if anything happens which broadens the market or in any way increases the profit, the room for expansion is so great that in a very short period overproduction is brought about again. If we had the most perfect system of marketing for all perishable products, so that the difference between the price received by the producer and that paid by the consumer became very small, in a few years production would expand until the price received by the farmer would be reduced to its present level, which, on the average for a long series of years, is just about the cost of production. A little familiarity with the history of prices and production of any of these intensive crops will convince anyone of the truth of this statement. But if the cost of distribution be reduced and production expands until the producer is in the same position he now occupies, the consumer would benefit greatly, because he would be getting practically all of the saving from our present wasteful methods of distribution. This makes it highly desirable that systems of marketing be developed that are as efficient as possible. These systems will temporarily benefit the farmer; ultimately, however, the benefit will go entirely to the consumer.

ECONOMICS OF PRODUCTION

Farm Management. The subject of farm management deals with the profits made by the farmer and the various principles involved in making these profits, or the factors which affect profits. The study of this science has shown clearly that any attempt to stimulate production beyond legitimate demand is ruinous to the farmer. It can benefit the public only temporarily, and that at the expense of the farmer. The ideal is to increase production as rapidly as is consistent with profit in production.

There are two factors governing the rate at which increased production has an economic justification. One is increase in demand. This comes about from growth in population, and from the cheapen-

ing of farm products to the consumer, which latter can be accomplished by better systems of marketing. Both of these will permit increase in production without ruinous decrease in price.

The second factor involved is the cost of production. If this can be reduced, then the price at which the farmer can sell with profit will be lowered, and the resulting increased demand will justify increase in production. Perhaps this point may be made clearer by considering its application to other industries. Take coal mining, for example. Suppose that by greater efficiency the annual output of coal were doubled in a short time. Supply would exceed demand, and prices would fall probably far below even the new low level of cost of production. This in turn would automatically reduce production. Approximate equilibrium would ultimately be reached between production and consumption at price levels below those formerly prevailing. Consider also the application of this principle to the great steel plants of the country. If these steel plants were to produce twice their present product, assuming the same kind of competition between steel plants that exists between farmers, the price of manufactured steel would fall. With an increase of 100 per cent in production without a corresponding increase in demand the price would fall to a ruinous point. As a result of these low prices consumption would probably increase, but the price under competition would fall back to the point where the plants would be making only a reasonable profit. This principle applies everywhere where there is free competition and unlimited production. These conditions obtain in agriculture, and anyone who discusses agricultural subjects without taking these conditions into consideration will be led into serious error.

But let us see what service the new science of farm management can render to the farmer and to the public in general. As stated above, this science deals with the economic factors which affect the profits in farming.

Types of Farming. The first and most important of these factors is the type of farming. If a farmer makes a mistake in selecting the various enterprises on which to base the business of his farm, especially if this mistake be a radical one, the resulting effect on his business is so overwhelming that he soon is either driven out of business or compelled to change his type of farming. For this reason in all those sections where agriculture has been long estab-

lished and where economic forces have had ample time to produce their legitimate effect, we find very few serious mistakes in type of farming. Thus, in one of our farm management surveys in a locality near the Atlantic seaboard, where farming has been in progress for more than two centuries, we found only one case of a gross mistake in type of farming. The region is one very poorly adapted to fruit. This particular farmer had planted two-thirds of his land in apple trees. He lacked $750 of having enough to pay interest on his investment, and as the interest on investment was less than this he actually had an income too small to pay his running expenses. It is inevitable that this farmer must ultimately fail.

But in the West and in certain sections of the South, where agriculture is developing on land recently brought under cultivation, mistakes of this kind are frequently met. A very large proportion of the real estate promotion schemes on the irrigated lands in the West have been based on the utterly false assumption that merely because the climate and soil were adapted to fruits and vegetables, the most intensive kinds of farming, it was possible for all this land to be devoted to this intensive farming. As a result of this egregious error thousands of men have lost their savings by undertaking types of farming utterly unadapted to local economic conditions. That is, there were no markets for their products. Combined with this mistake, and in reality as a result of it, the area of the farms has been made in many cases entirely too small to permit success with types of farming that are adapted to local economic conditions. Not only that, but the prices these men have paid to real estate speculators for their land are such that no type of farming can be made continuously profitable upon the land.

Even in the older parts of the country the science of farm management can render farmers an important service in connection with their types of farming. Thus, in a given region, where a farm management survey was conducted, three-fourths of the farms are dairy farms. Most of the remainder are hay farms. A few instances were found where the major source of income is poultry, or potatoes, or wheat, or several of these enterprises. A careful analysis of the business of some five hundred farms in this locality shows plainly that certain types of farming which are found on a few farms are quite poorly adapted to the region. When the results of this survey are published it will show those farmers who are engaged in

the types of farming most profitable for the region that they are right, and will thus tend to keep them right. It will show those who are engaged in wrong types the change they should make in their system. That is, it will benefit a small number of people by showing them the changes they should make in their types of farming and it will benefit a larger number by showing them that they are on the right road and should stay there.

Magnitude of the Farm Business. One of the most important lessons that the study of the science of farm management has emphasized is the relation between the magnitude of the farm business and the profit made by the farmer. The "little farm well tilled" has been lauded in this country since agriculture first became established. The farms in the Atlantic coast states were established at a time when the family farm was necessarily small because of the lack of labor-saving implements. The owners of these small farms produced nearly everything they needed in the way of food and clothing. They naturally produced a very small surplus, which went to feed the cities. Under these conditions only a small proportion of the population could live in cities because the surplus of farm products over and above the needs of farm families was so small. But about the time when emigration began to flow over the Alleghany Mountains and spread out in the broad Mississippi Valley, covering one of the most extensive and most fertile agricultural regions in the world, improved farm machinery began to be invented. This permitted a farm family to farm a much larger area of land.

The effect of this migration into the Mississippi Valley and the development of more efficient farming with labor-saving implements was overwhelming on the small farms of the Atlantic coast. The period between 1840 and 1850 witnessed the most tremendous revolution in agriculture in the Atlantic coast states that has ever occurred in this country. A small hint of the disaster which overtook eastern farmers during that decade is seen in the following facts. In Chester county, Pennsylvania, which at that time was one of the leading agricultural counties of the country—and which still maintains preëminence as a farming region—the number of swine fell from 65,000 in 1840 to 36,000 in 1850. These small Chester county farms, on which it was not practicable to use the more modern methods of crop production, found themselves poorly prepared to compete in swine production with the large farms of the

West. The disaster to the sheep industry was much more marked, the numbers having fallen during the decade from 56,000 to 13,000. At the beginning of this decade the production of beef was perhaps the most important phase of agriculture in Chester county. In the beginning of the decade there were 39,000 beef cattle in the county. Competition with the West reduced this number rapidly, and the reduction continued until 1890, when only 11,000 head of these cattle remained in the county. Practically the only livestock industry left to these farmers was dairying, and it is a bitter pill to the stockmen whose business has been based upon beef cattle, swine and sheep to descend to the continuous and laborious work of caring for dairy cows and their products. In 1840 there were 16,000 dairy cows in Chester county, Pennsylvania; in 1890 there were 49,000, and dairy products now constitute by far the most important source of income in the county. The small farms in the region could be converted into modern family farms only by some such intensive type of farming as dairying, as they are not adapted to fruit and vegetables.

What has been said above applies practically to the whole North Atlantic coast. Small farms still predominate in that region, but the reasons are at least partly historical, and not wholly economic. In the West, which was settled up after labor-saving machinery had been generally introduced, these small farms are few in number and are gradually disappearing to make place for the more effective large farm. In general, farm management investigations have demonstrated that the smallest effective area for a farm is that which will give constant employment at productive labor to the average farm family. It may be any amount larger than this, provided the farmer himself is capable of managing to advantage a larger amount of labor. In localities where good markets are available for the products of intensive farming, relatively small areas of land may be made to support an intensive business which in actual magnitude is equal to the business of the large farms of the Middle West. But when a real estate promoter undertakes to transplant this intensive farming to small patches of land a thousand miles from any possible market, he is doing a gross injustice to his patrons.

Quality of Business. The third most important factor affecting farm profits relates to the quality or the general efficiency of the

business. First we may consider the yield of crops. Farm management surveys have shown that, on the average, the higher the yield of crops the more profit the farmer makes, though there appears to be a very distinct limit in this direction. If the land is poor and yields are very low, they can be increased markedly with relatively small expenditure. But after yields of medium magnitude have been attained further increase is more expensive, and it not infrequently occurs that farmers with moderate yields make more profit than those who produce much larger yields. In general, however, those who get at least moderate yields nearly always make more profit than those who have low yields. The most important factor in the yield of crops is the character of the soil itself, and the farmer has very little control over this; but tillage and the use of manure and fertilizers are factors which are completely under the farmer's control. He can also increase his yields considerably by careful attention to the kind of seed he plants and by such modifications of his rotation or of his cropping system as will give the best adjustment between the kind of crop and the character of the soil, for distinctly different types of soil frequently have marked differences in crop adaptability.

In the case of a dairy farmer the income per cow is a very important measure of the quality of his business. In one of our farm management surveys a large number of farmers had receipts of less than fifty dollars per head from their cows. When these farmers were grouped according to number of cows, it was found that the more cows the farmer had the smaller were his profits. But in the same region were a considerable number of farmers who received an income of over a hundred dollars per cow, and in this group the larger the herd, the greater the profit. It has been conclusively proved in farm management surveys that one of the most important problems in any dairy region is that of breeding up the herd for greater production.

In the case of those farm products which reach the consumer in the same form they leave the farmer, as is the case with fruits and vegetables, the method of preparing the products for market, the kind of containers, the method of arranging the product in the containers—in fact, all those factors which affect the appearance of the produce when exposed for sale to the consumer,—have a very distinct relation to the farmer's profit.

A very remarkable illustration of this fact occurred a few years ago in St. Louis. At the height of the season for peaches the market was utterly glutted and the price was far below even the amount of transportation charges. One could go along the principal market streets and buy any amount of peaches for ten cents a crate. The owners of a large peach orchard in southern Missouri during this period made a special effort to make their fruit look attractive. The crates they used were made of the cleanest lumber obtainable. Every peach that was not entirely fancy in quality was thrown out, and before packing each peach was wrapped in a clean, crisp paper wrapper, with advertising matter neatly printed on it. When these peaches reached the St. Louis market and were exposed for sale beside other fruit which could be had for almost nothing, purchasers who passed along and saw this fine fruit would ask "How much"? "One dollar and sixty cents a crate," was the merchant's reply, to which the customer would usually respond: "Send me up a crate of these." Purchasers did not even ask the price of the less attractive fruit. They had found what they wanted and were willing to pay the price for it. It is in the most intensive types of farming that this matter of the appearance of the product in the market becomes of supreme importance.

Organization of the Farm Business. It is in the organization of the farm business that the principles which have been so highly developed in connection with the recent efficiency movement in the industrial world have their widest application. Volumes could be written without exhausting the subject of farm organization. Space permits only a few illustrations.

In the heart of the corn belt about fifty per cent of the land is in corn, about twenty-five per cent in oats, fifteen per cent in clover, and the remainder in a miscellaneous assortment of crops. Corn and oats thus occupy seventy-five per cent of the land. Now it happens that both of these crops require their maximum amount of work in early spring. After the spring rush is over oats require no further attention until harvest time, which comes just about the time the corn ought to be cultivated for the last time. Then after the corn cultivation is finished and the oat crop is harvested, there is practically nothing to do on these farms until it comes time to husk corn late in the fall. When the corn is husked, there is a long idle period during the winter.

In order to meet the tremendous rush of work in the early spring it is necessary for the farmer to have about one horse for every twelve to fifteen acres of land he has in cultivation. On a particular farm in Illinois, on which one hundred and seventy-five acres of land were in cultivation, twelve work horses were used for two months in the spring. Outside of these two months there is not a time of the year when more than five horses are needed, and except for about five months two horses would do the entire work on this farm. Now it costs approximately $100 a year to maintain a horse in that region. But since horses cannot be hired when they are needed, it is necessary for this farmer to keep twelve horses the year round. A careful study of his system resulted in the formulation of a new system which spread his field work quite evenly over the period from early spring till late fall and enabled four horses to do the work without ever being rushed. Assuming that an extra horse is kept for emergencies, this new system represents a saving in feed and other expenses of seven horses, amounting to, say, $700 a year, with a corresponding saving in horse-drawn implements. This represents approximately the saving that could be made by better farm organization throughout a large area in the central portion of the corn belt.

The problem of farm organization in the cotton belt presents some very interesting phases. Taking the cotton belt as a whole, a single farm family can manage about fifteen acres of cotton and ten acres of corn. One horse can do the work on such a farm. This is the reason for the general prevalence of the one-horse farms in the South. But when a man is following a single six hundred-pound mule across a field he is not earning much for himself or for anyone else. Studies of the problems of farm organization in the South have resulted in evolving systems of farming which will permit the average farm family to produce as much cotton as it now produces and at the same time produce about forty-five acres of other crops, thus raising their family income from about $140 to over $500.

It should be remarked that the principal benefit that will come from changes of this kind will not be a great increase in production; it will be a great increase in the income of the farm family, thus permitting a much higher standard of living. This may be said generally of the benefits to be derived from the application of

the principles of farm organization. It is easily seen that if one farm family who now manages twenty-five acres of land can be made to manage efficiently over fifty acres that one-half of the present farm population of the South will be sufficient to farm the present crop area. Increased efficiency in farm organization will thus tend to reduce rural population, but to increase greatly the income of those who remain. This will permit a larger proportion of the population to be employed in city industries. The increase in these industries will in turn broaden the market for farm products and thus justify increased production per acre on the land at present under cultivation, and this increased production must come about mainly in response to increased prices or decreased cost of production.

One of the strangest anomalies which has developed in our studies of farm organization is the fact that so-called accurate farm bookkeeping is exceedingly deceiving. The farmer who undertakes to keep books finds that the books do not tell him the truth, and he quits because he loses confidence in them. This point can be well illustrated in the case of farm poultry.

The office of farm management has, in some cases, kept an accurate record of all the labor, feed, supplies, etc., expended in maintaining a flock of poultry on the farm. In nearly all cases the results show that the poultry products have cost more than the farmer received for them. In one case a very efficient farmer in one of the North Central States, who maintained a large flock of poultry, found from an accurate record that the eggs during a certain year cost him twenty-five cents a dozen while the average selling price was twenty-two cents. The farmer did not know how to find where the trouble lay, but he did know that there was something wrong with the bookkeeping. When the results were shown him he remarked: "Well, I know I made these records accurately, and these eggs have cost me more than I got for them; but I couldn't buy eggs of the quality of those we have consumed on the farm this past year. I shall continue to keep my poultry." The trouble with the bookkeeping was this: this flock of poultry had been charged with about three hundred hours of labor at fifteen cents an hour. They had been charged with certain materials used in the construction of houses and runs and with the time consumed in putting these materials in place. They had been charged market prices for all

their feed, and so on. Now the fact is that nearly every hour of time spent on this poultry was time that would otherwise not have been profitably employed. Most of the material used in constructing and repairing the quarters was waste material lying about the place. A large part of the feed was material that, if the chickens had not been there, would have gone to waste. The fact is, this farmer made a profit out of his poultry, and the books did not represent the facts in the case.

It is even possible for a farmer to make a fair income when every industry on his farm, if considered separately by the usual methods of bookkeeping, would show a loss. Take the dairy farmers of New England, for instance. When we keep books against the average herd of dairy cows they show a loss, because we count the time put upon them at current rates of wages. But the fact is that many farmers, if they didn't have these cows, would spend most of the time for six months in the year with their feet against a hot stove. But with the cows to look after they can make enough above the actual cash expenditure to pay themselves, say seventy-five cents a day, all through this winter period. This represents just so much added to the farmer's income, and this industry, which the ordinary methods of bookkeeping show to be a losing one, is actually the foundation of the farmer's success, though it must be admitted that under such circumstances his success is rather meager.

It is impossible to approximate the annual saving to farmers in this country that would follow the adoption of ideal systems of organization for their farm business, for two reasons: in the first place, we do not know the facts concerning present conditions except for a few limited regions where farm management surveys have been conducted; and in the second place, such reorganization would require considerable change in the relative area of crops and in the numbers and types of farm animals, and no one can predict what the results of such changes would be. It is safe to say, however, that establishing suitable types of farming everywhere, making every farm either large enough or intensive enough (where permissible) to furnish full employment to its owner and the working members of his family, securing the largest yields consistent with profit, and introducing such organization of the farm business as to give the maximum utilization of the land, labor, and equipment of

the farmer, would have a most profound influence, not only on the standard of living on American farms, but on the supply of labor for other industries. The above-mentioned example of more than doubled output and income for a southern farm family is exceedingly suggestive.

THE SCIENTIFIC STUDY OF MARKETING

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The words "scientific" and "principles" are much heard in business today, in its practice and especially in its teaching. Some years ago it might have been proper to discuss the possibility of teaching business and the existence of principles in business. Time has answered both queries. Business is being taught and principles of business are being disclosed.

Business principles are sometimes confused with business saws. "Early to bed and early to rise" and "Save your pennies," or even "Goods well bought are half sold" could by no stretch of the imagination be called business principles in the scientific sense of the word principle. Scientific connotes a basis of organized knowledge, and principle connotes at least a fairly definite relation between antecedents and results. On the other hand, such generalizations as—the nearer an inventory is to its raw material stage the better basis of credit it is, or, when stock-turns are fewer depreciation cost is apt to be greater,—are nearer our understanding of principles.

When enough precedents of marketing are accumulated to show that with some facts ascertained as to whether an article is a specialty or a staple, what its unit of sale is, what its capacity for repeat orders is, and so on, certain broad policies as to the methods of marketing this article can be laid down, then certainly an approach is being made to an organized body of knowledge. And if it is possible to go still further in the field of marketing and in the division known as retailing, show by inductive study that one of the first rough tests of efficiency in a retail store is the annual sales of the average salesperson and still further establish that at present in the retail shoe business in a city of more than 100,000 population this annual average should be about $10,000 and furthermore that the rent should not exceed 5 per cent and can be reduced to at least 3 per cent of the net sales, then indeed there is being provided a still more definite body of knowledge from which principles can be established.

The two great divisions of business are the making of things and the buying and selling of things. These are the central activities—production and marketing. The other functions of business, for example, accounting, banking, transportation, insurance, are functions auxiliary to these central activities—important, most important, but auxiliary.

In the field of production, of course, the body of knowledge is on the whole better organized and more precise. The various systems of management relate more to production than to marketing. Though a vast field for research, marketing has had comparatively little scientific study. It has not seemed particularly susceptible to scientific study. It abounds in the human equation. This does not mean that much ability has not been expended on this field not only in studying and inciting demand but also in recording performance. Map and tack systems, quotas and bonuses, selling costs and carefully prepared statistics of various kinds have for a considerable period been employed by the most progressive selling organizations. These internal statistics have also been accompanied by external statistics affecting and reflecting market conditions. But in the last analysis, the figures finally used in marketing, however obtained, are based on the law of averages, frequency, or proportion; the standards set, no matter how carefully and specifically adjusted, are in the last analysis averages, modes, or proportions and apply en masse rather than in detail. Again this does not mean that these data are not regarded as most valuable, as, indeed, the later statement of research work will show. A great problem in marketing is to get down beneath the law of averages and types. Production is so much more specialized and standardized, so much more precise than marketing that it is possible, given certain facts of material, dimension, and design, to set a maximum time for the performance of a certain specific operation. The appliers of scientific management have, furthermore, shown the possibility of determining a minimum time for this operation with conditions continuing the same and of prescribing the means whereby this minimum time need not be exceeded. In other words, the scientific manager in production can not only tell William Jones how long he should be in machining a certain part, but can furnish him with the best feeds and speeds to employ in doing the work in the time specified, and if the methods and time apply in Philadelphia

it is presumed that they will also apply in Boston. But in marketing, no manager, no matter how able and experienced, would attempt to tell Thomas Smith how long he should be in selling a pair of shoes to William Jones, nor to give more than general instructions as to the best way in which to do the selling. About the best this manager has been able to do is to say that in a week, on the average and according to the season, Thomas Smith should sell so many dollars' worth of shoes. In machining the part, the conditions are more standardized, the operation more specialized, the human factor is less and is more under control. In selling the shoes, the opposite is true. In production, the time for an operation can be measured by minutes and less; in marketing, I have encountered no practical use being made of units of less than one week.[1] This warrants the consideration for a moment of certain fundamental differences between production and marketing, bringing out why in business some men grow up on the "selling side" and some on the "manufacturing side."

These differences may be balanced against each other as follows. In production, men meet only as members of the business—as subordinates, peers, or superiors. Neither the customer nor the competitor is encountered directly. In marketing, on the other hand, men are in contact not only with the other members of the business, but also with the customer to serve and the competitor to meet.

In production, the problems are likely to be more those of cost —material, labor, and overhead. In marketing, the attention is more focussed on price. Knowledge of cost is not particularly essential. The market is fixing values outside of the businesses' control. Emphasis is also likely to be laid on quality and service.

In production, the problems on the whole are internal. In marketing, the problems on the whole are external. Competition

[1]In all the foregoing the differences cited are more differences in large degree, than narrowly in kind. For example, time studies are themselves usually modes or averages or both, and allowances have to be made according to the character of labor of a community. And in marketing, on the other hand, the practice in large markets of having salesmen say nothing about the goods but simply answer and serve, and the abolition of the sales slip in the 5 and 10 cent store are steps toward production methods in marketing. Despite these theoretical similarities, the differences in fact in operation and result between production and marketing are as stated.

is on every hand. The market is to be analyzed. In production, there is probably for the individual business a possibility of greater independence of action. Marketing is probably more hedged about by the customs of the trade. In other words, as said before, marketing abounds in the human equation.

Another illustration of these differences can be taken out of the shoe industry from the manufacturing and marketing sides respectively. In the manufacture of shoes in general, the unit of measure employed in determining the output of the workman is the pair, or multiples of the pair. That is, a physical unit, a quantitative unit, is employed.

In the marketing of shoes, wholesale or retail, in general, the unit of measure employed in determining the output of the salesman is the dollar, the value of the sales. That is, a unit of value, a qualitative unit, is employed. It has been suggested, however, that the proper unit on which to calculate the retail salesman's efficiency and wages, as well as other expense, is also the pair. And this has been further supplemented by one with experience in production, who says that marketing is but a continuation of production only with the addition of utilities more in the nature of place and service than of form, and that the store salesman makes *sales* just as the factory worker makes *shoes*. The test of efficiency of the salesman, he says, is the number of sales, just as the test of the efficiency of the factory worker is the number of pairs, and when asked if salesman A selling 15 pairs of $3 shoes, or $45 worth, were more efficient than salesman B selling 10 pairs of $5 shoes, or $50 worth, in the same period, at once answered "Yes."

The true answer is that in the last analysis probably both the worker and the salesman are paid according to the value contributed by each to the shoes, only the contribution of the worker to each pair can be so exactly measured that the pair and multiples of the pair become the more convenient accounting unit. But the salesman's operation has not been so standardized. Greeting the customer, learning his wants, finding the shoe, fitting the shoe, closing the sale, starting the accounting on the sale, and the delivery of the goods are a whole series of operations more complex than skiving a shank or nailing a lift. Furthermore, in the latter operations the material and the machine have no personality—the operator only, whereas in the case of the salesman there is not only the unknown

quantity of the personality of the customer to reckon with but also the unknown interaction of the two personalities. So for the operations of the salesman the dollar which in itself is a common denominator becomes the more convenient accounting unit. And this very difference in units brings out most significantly the difference between production and marketing.

Scientific research then in marketing is evidently not an easy task, especially if scientific be given the same strict definition that it has in production. Of the importance of the subject marketing, however, there can be no question as a few facts will show. Forty per cent of the price paid by the ultimate consumer for a pair of shoes is consumed in getting the shoes to him from the manufacturer, exclusive of the manufacturer's profit, that is, in marketing them. For less staple commodities this percentage is yet higher, and even on so staple a commodity as groceries the marketing margin ranges from twenty-five to forty per cent. The idea is not that this margin is either proper or improper, but simply that it is a pregnant subject to investigate.

It accordingly was in the field of marketing that the Harvard Bureau of Business Research set to work. It decided to work by commodities, and for the first commodity, selected shoes as a staple regularly marketed by various methods—manufacturer to wholesaler, to retailer, to consumer; manufacturer to retailer, to consumer; manufacturer to consumer directly by mail or through owned retail stores. In the marketing of shoes, the division retailing was begun. The first concrete task was to ascertain the cost of retailing by securing as many individual retail costs as possible. Dearth of adequate records in many retail shoe stores and variations in bookkeeping in all of them necessitated the drafting of a uniform accounting system which has become standard in the shoe trade. Thus was the accounting variant removed. The great problem has been, of course, to remove as many variants as possible and get the marketing units on as near a comparable basis as possible; that is, to apply the standardization of production so far as applicable.

With the records of first 130 and then 650 stores adjusted to this system it has been possible to prepare normal and standard figures, some of which have already been referred to. The more

important figures were summarized in the bureau's Bulletin Number 1, as follows:

SUMMARY TABLE OF IMPORTANT FIGURES FROM THE RETAIL SHOE BUSINESS
NET SALES = 100 PER CENT.

Item	Lowest percentage	Highest percentage	Percentage about which data centre (not an average)	Percentage about which a concentration is sufficient to indicate a realizable standard
Gross profit, including discounts	20	42	Low grade 23–25 High grade 30–33	
Total operating expense not including freight and cartage or interest	18	35	Low grade 23 High grade 27	Low grade 20 High grade 25
Buying expense	0.8	1.8	1.1	1.0
Salesforce expense	5.0	10.3	8.0	7.0
Advertising	0.0	8.8	2.0	1.5
Deliveries	0.0	1.4	0.6	0.4
Rent	1.8	14.6	5.0	3.0
Interest	1.0	7.9	2.5	2.0
Stock-turns, a year	1.0	3.6	1.8	2.5
Annual sales of average salesperson	$5,000	$16,500	$10,000	

The first two columns of this table show the range in the important figures of operation specified and the next two columns modes for these figures (not averages). The third column contains the mode for the whole group and the fourth column the mode for an efficient group large enough to be significant. The third column then may be said to provide a normal figure and the fourth column a standard—something to aim for. That these figures have served as standards for shoe retailers, resulting in reduction of expense, the bureau has concrete instances. This is not hard to understand when it is remembered that probably never before have the great majority of shoe retailers had any certain knowledge if their rent amounted to 7 per cent of their net sales that it should be 5 per cent, and could be 3 per cent in cities of over 100,000 population;

or that more than 8 per cent of the net sales is too much to pay for salesforce expense as defined by the Harvard System of Accounts for Shoe Retailers.

It is, furthermore, evident that there are variations in the operating expense of retail shoe stores of nearly 100 per cent (18–35). Preliminary studies of the retailing of other commodities, especially groceries, hardware, clothing and drugs, indicate practically as wide a variation. Just how far society, as represented by the consumer, is benefited by increased retail efficiency it is hard to say. But it does seem from observation in the retail shoe trade that a part of the saving in expense goes to the consumer in reduced prices. Even if the consumer does not benefit, for the stock of capital of society as a whole it is better to have this saving go into the retailer's profit than to have it largely consumed in marketing friction.

With still further data obtained from shoe retailers, the bureau expects further to classify and refine the above figures to detect the influence, if possible, of the important factors of the population of the community in which the store may be located, the grade of business of the store, and its volume of business.

At the same time, the research is being pushed back to the shoe wholesalers and the shoe manufacturers with or without stock departments. Also within a year an investigation of the marketing of groceries has been begun in a way generally similar to the shoe study. And already, though the same accounting system is being employed, conditions strikingly different in the retailing of these two commodities have been found. Some reference to those relating to stock-turn and depreciation cost will appear shortly in a bulletin on depreciation in mercantile businesses with special reference to the retail shoe business.

Costs are not the only subject of study. In fact, it might be said that just as the accounting system was an incidental necessity to the securing of costs, so the costs are an incidental necessity to the securing of the best practice. What, for example, is the best retail shoe practice? Should a shoe retailer buy from more or fewer sources? Should these sources be manufacturers or wholesalers or both? How much stock should he carry, and how should he determine it? In other words, cannot shoe retailing be made more scientific and economical, and how can it be made so?

Similar work will be done with the wholesaler and other agencies

of marketing and eventually with not only shoe and groceries, but with other commodities.[2]

But, after all, the material that has so far been obtained and is so far being sought by the bureau is really modes, whether of specific figures or of general practice. The bureau's schedule for shoe retailers states that, apart from the figures desired, the object of the general questions is "to bring out the character, experience, policies, and tendencies" of each store. The mode of the practices of stores with the most efficient records would be the best practice. Furthermore, these modes are based on a unit of time of not less than six months, and frequently a year is a still sounder foundation. And although a standard so based can be applied before the results it is measuring are six months old, still a considerable lapse of time is necessary before fruitful comparison can be assured.

In other words, the bureau, like the advanced selling organizations, is still dealing with averages and types, although through its non-competitive confidential position it has access to a much greater variety of experience. This work is worth while; it can even be called scientific in the sense that it is constructing an organized body of knowledge, but it is by no means scientific to the degree of the scientific management of production.

How far can the scientific management of production be applied to marketing? In production, the great fundamental problem is to determine the proper task. The storing, the routing, the greater standardization, the time studies, the improved methods and processes all relate fundamentally to the task, and this task once determined can be definitely reckoned on as long as the conditions remain unchanged, and these conditions either do not change or if they do their change can be measured and allowed for.

Similarly, in marketing, tasks are beginning to be searched for and set, but a very much longer unit of time is necessary and the given conditions change, and the change and its effect is difficult to estimate. If the bureau were to pursue the methods of scientific management in exact analogy it would take complete charge of a shoe store, measure every dimension, keep careful records of stock

[2] Further material of the Harvard Bureau of Business Research will be found in its own Bulletins 1–4, and some account of it has also appeared in the *American Economic Review* of December, 1913, and in *Papers and Proceedings of the American Economic Association*, March, 1915.

and sales, of salesmen and customers, correlate the selling more with buying, make the best selling stock most accessible to the fewest steps, take time studies of sales to various customers, and so on. As a result it might redesign and relocate the store, and change its buying and selling methods. Much could be done; much could be learned. How much would that knowledge apply to another store, and how much to the same store a year later?

What specialization and standardization are possible in marketing? How far can the experience of one section be applied to the methods of another? How much of the marketing problem is human and how much of this human factor is determinable and measurable? Must marketing always have its practice guided by general data, averages, modes, proportions—mass phenomena? What reorganization is desirable and possible in the present system of marketing, or is a new system developing? These are absorbing questions. Society has permitted a large margin for marketing cost and now society is investigating to see how this margin is used. Here is a tremendous field for research. Its potentialities are hard to overestimate.

THE RELATION OF RESEARCH TO THE PROGRESS OF MANUFACTURING INDUSTRIES

By W. R. Whitney,

Research Laboratory, General Electric Company, Schenectady, N. Y.

We humans can never quite appreciate the incredible applicability and utility of new facts of nature. We are repeatedly shown by our experience, but each new example only augments our stock of wonderment or bewilderment. A very few months ago a certain well-known scientific investigator (Lord Rayleigh) found a slight difference in the density of nitrogen taken from air and nitrogen derived from other sources. He felt obliged to know about this little difference. In coöperation with Sir William Ramsay, he discovered argon. This was present in the atmospheric nitrogen and had always escaped detection. It formed less than one per cent of the air. It was discovered to be entirely inert and chemically inactive. This was an apparent promise of great chemical uselessness. At that time it was also exceedingly difficult to separate it from the air, and except for its scientific interest, it seemed destined to be left inactive. Newly discovered methods of liquefying air and of combining nitrogen for fertilizer, as in the cyanamid process, have just made the argon available commercially. Other pure scientific research had shown the value of such a gas in incandescent lamps, and it is just at this time being used to produce the most efficient incandescent lamps of our knowledge. It was the recently discovered differences between this gas and other gases which made this lamp possible. When its existence and properties were known, its application was relatively simple and easy.

Our American people are quick to see the value of new things where value exists. They are given, in this era, to actively utilizing every scheme which means better health, greater safety, greater pleasures, greater profits, and greater economies. We can hardly conceive of a people devoting their lives to inactivity and idleness. To better living conditions, to improve and extend manufacturing industries, and to conserve resources is quite generally the life aim of our ablest men.

A nation or a race does not stand still. It either advances or falls behind its neighbors. Knowing more has been the means of every nation's advance.

Research is a convenient word which covers the pioneer work upon which advances are founded. It is significant that as life becomes more and more complex, it is ever less possible for advances to be made by accident or by the designs of an individual working for short periods on different subjects. The day of that inventor is past who discovers an animal carrying a new hide, who modifies the shoe machinery or devises a new button or buttonhole. Each of these and a thousand other such details are now the fertile fields in which groups of trained experts are at work. We want shoes badly and there are many of us. We want them to wear well, even to the enamel on the brass eyelets. The fact that we are collectively willing to pay hundreds of thousands, or even millions of dollars for some slight improvement in a shoe or additional economy in the manufacture, indicates not only that we are many, but that we want actively every possible improvement and economy.

A Benvenuto Cellini lived and left the impression that he did all the work of an army of artists, inventors, soldiers, politicians, murderers, and—I may as well add—biographers. Besides his autobiography, he wrote books on the goldsmith art, sculpture and bronze, foundry practice, architecture, and poetry. There are none extant like him.

A Franklin wrote equally advanced discourses on electricity, on coal stoves, on the recently united states of America which he represented, on economy, on philosophy, and many other subjects. We have few Franklins and Cellinis today.

Today the research chemist, with his analytical methods, the metallographist, with his microscope, the physicist with his pyrometer, the mechanical engineer with his tensile strength apparatus, and the coke, gas, oil and electric furnace experts are each separately working on the still wonderfully complex cast iron of which a stove is made. Certainly they will not be satisfied, nor will we, the people, be satisfied, with any final state, so long as we can conceive of a better one. Iron must cast better, must rust less, be stronger, be permanent in the grate bar, be cheaper, keep an unaltered color, and so on.

The entire work involved in developing such new devices and

processes may be called research, but there is a part of it which deserves more careful attention than the rest. This part is sometimes called pure research. Most people mean by this term the search after new knowledge, without reference to its utility. Others mean the search for new and useless knowledge. There certainly are searchers after new truth who do not wish to see the usefulness of their disclosures. But facts of nature or true principles of science live forever and are sure to be useful. The attempt at worship of pure research for its own sake, as is often done, is merely the tipping backward of those who wish to stand erect, unbent by sordid aims in their search after truth.

Bergson points out that the essential object of science is to enlarge our influence over things. He says:

> Science may be speculative in its form, disinterested in its immediate ends; in other words, we may give it as long a credit as it wants. But however long the day of reckoning may be put off, some time or other payment must be made. It is always then, in short, practical utility that science has in view.

A fair example of scientific research lies in the history of our talking at a distance. First, we called out as loudly as we could and the strongest voice was the best telephone. The use of some new knowledge which was not immediately or obviously connected with the voice was later put to use, and a tin or iron pipe was used for short distances as a speaking tube. After this idea was disclosed, plumbers, tinsmiths, or pipe fitters could do the rest. Then, later, the possible application of formerly entirely undreamt of principles to the increase of the speaking distance was tried. Those to which I refer were the electromagnetic principles which, in short, produced the telephone transmitter and receiver. These changed the short, thick pipe into a long, thin wire. I regret that I cannot go into detail to point out the extended researches which, without the slightest premonition of telephony, had to be made before the knowledge was at hand to enable Bell to contribute his part. Joseph Henry, for example, studying in the basement of an Albany school, had to wind wires with insulation and study the properties of the magnet, and this had to be followed by the studies of many others for half a century. To the early art, in the pipe stage, the telephone wire may have looked merely like a more refined pipe of the same material, but it was not. There were entirely new, and

what I may call remote, principles, brought into play and added to the metal of the pipe. These were discovered by patient scientific research of the highest order. The outcome could not have been foreseen from any knowledge of pipes or piping. In a practical treatment of the subject of Research and the Industries, this point must be made clear. The final gathering of the fruits of the labor of research often seems as little anticipated by the real planting done by search for new knowledge, as the picking of the fruit of a tree seems anticipated by burying a seed in the ground. Nevertheless, the developments are the same in the two cases. It may be for this reason that the President of the Carnegie Institution, in his 1914 report, referred to the work of the Institution in the words:

> The general reader must take it for granted (provisionally, at least) that these investigations are in the main worth undertaking . . . . for in proportion as such investigations are fundamental, and hence worth carrying on, they will be difficult of exposition and more difficult of comprehension.

Of the lines of activity of that Institution, the farmer sees value in the studies in heredity in cattle, but wonders why anyone should want to synthesize rocks; the glass maker who sees value in the geophysics work, wonders why the sun spot work is of use, while the naturalist[1] says: "The sublime ideas of infinity of space and time, and the beauty of the simple laws of planetary motion, have had a value to mankind far transcending that of any so-called practical application of stellar science." Thus, those who have had the broadest comprehension have generally most highly valued pure research.

So we are now in our day apparently seeing our telephone wire grow finer and longer. Talking from New York to San Francisco is a thing of every day commercial experience. This, in turn, was due not alone to the use of longer wire or lower resistance or more delicate instruments (what Bacon calls an increase in the efficient), but involved new, remote ideas, the result of research. Such is the Pupin loading coil, for example, which has made long distance telephony possible. We are also aware that to all appearances the telephone wire is now being drawn so fine that it is altogether disappearing, and wireless telephony is an accomplished

[1] R. G. Harrison, President of the American Society of Naturalists, Philadelphia, 1913.

fact. This becomes possible not through finer wire drawing, but by the application of *newly discovered laws or principles of nature.* It was not even done by those who were most industrious in construction of telephones, any more than the tin speaking tube was really displaced by the tinsmith. The work was done by those already trained scientific investigators, who were learning new facts of physics or electricity which, at some stage of their work, seemed, applicable to telephonic use. This new work, this pioneer obtaining of facts which never revert to the undiscovered state, constitutes research.

Our government, among others, has schemes for the promotion of research. One of them is the patent law. If a discoverer will disclose his discovery to the public, he may exercise a monopoly of it for seventeen years. In some cases this is very encouraging, but it seems to have at least one serious defect. The discovery, besides being new, must be, at the same time, useful. With many great discoveries this is not the case. It may seem ridiculous to favor useless discoveries, but it is quite the reverse. The thing to encourage is the search and finding of new facts, principles, laws, and habits of nature; *i.e.*, additions to our knowledge without reference to immediate value. These are the surest guarantees of ultimate utility. The process of making knowledge useful is not half so difficult nor so rare as is the production of the knowledge itself. But the rewards usually go to the man who shows us the utility. For this reason we must plan better ways of encouraging scientific research. To emphasize this is the only object of this paper. It is being done to some extent. Many of those, living and succeeding under our system of advance, have realized the way the seeds have first to be sown. They have usually selected some special field where the utility to be expected from newly disclosed facts would be of greatest public good. In this spirit have been established many of those research institutions which are devoted to the health of the people, the cure of disease, etc. These are starts in the right direction and are naturally made where the need is most painful.

Of a little more remote benefit is such research work as is being carried out by the Research Corporation, from whose minutes the following abstract was made:

This far-sighted and patriotic conception found its realization through the "Research Corporation" which for administrative reasons was substituted for the Smithsonian Institution as the custodian of Dr. Cottrell's endowment. The objects of the Research Corporation as stated in its Charter are:

"To provide means for the advancement and extension of technical and scientific investigation, research and experimentation by contributing the net earnings of the corporation, over and above such sum or sums as may be reserved or retained and held as an endowment fund or working capital, to the Smithsonian Institution, and such other scientific and educational institutions and societies as the Board of Directors may from time to time select in order to enable such institutions and societies to conduct such investigations, research and experimentation."

Organized in 1912 as a stock corporation but precluded by its charter from paying dividends and capitilized by a group of gentlemen desirous of furthering Dr. Cottrell's objects, without personal profit, the Research Corporation undertook and successfully accomplished the installation of the Cottrell processes in various industries throughout the country, with the result that in two years' operation its surplus has provided the capital of twenty thousand dollars required by its charter, and a fund of over one hundred thousand dollars for scientific research.

A few such steps as this one would soon build up a fund of new knowledge. I think it is safe to say that most of our new knowledge of physical, chemical, and electrical phenomena has come to us through the publications of various scientific societies. The work was largely done as a by-product of poorly paid services in colleges and universities of the world. Let me illustrate this point. The general field of colloid chemistry is open for investigation. There is surely no more fertile field. It touches all the reactions of living organisms and most of those of organic and inorganic chemistry, from the growth of cells through immunity to disease in animals, to the decay of metals, from the coloring of glass and dyeing of fabrics, to the production of a river delta or the manufacture of an automobile tire. It is being largely done as the by-product or hobby of a few teachers in their spare time. As the principles governing this part of chemistry are made known, the applications in useful processes will be rapid, but there are many men ready to perform the latter operation compared to the few who are making known the laws involved. For every investigator who might point out from his experiments the possibility that the antitoxic action of immunized blood serum might lie in the magnitude of the electric charges on the colloids concerned in the reactions, there are hundreds of others

who will ably test the hypothesis when it is advanced. For every chemist whose experiments go to clarify the laws of tensile strength and the wear and friction of colloidal materials, for example, there are hundreds who will test his conclusions in new aero-metals and automobile tires. We in this country are particularly active in putting the "useful" into the invention, but we are less active in the study for the "new." For this reason it is necessary to encourage research of the advanced type. Anyone who has followed the subject knows that during the past ten or more years, the amount of research work in connection with the industries has greatly increased. Large manufacturing companies in many lines have groups of men who devote all their time to advancing the methods of manufacture by more or less pure research. They are never expected to become part of the production department, but are always kept on the exploring line in laboratories. There are now research laboratories connected with almost every art and profession. The American canners and the American dentists have them, as well as the companies making powder and shot, and those making armor plates. There are laboratories devoted to research on paper and others on paint, some working on cements and others on soils, some on gas lights and others on electric lights, some on fertilizers, others on sterilizers, and some on almost everything. They could all use more knowledge to advantage if they could get it. If there were no way to increase the rate of our acquisition of knowledge, then this argument would be useless, but we have had a lesson from Germany during the past forty years which shows one way of increasing the world's stock of knowledge. It is by encouraged or endowed research. Germany did it through her universities. Every year there were turned out one or two thousand men with the degree of doctor of philosophy. This meant that each one had done a couple of years research work and, in most cases, freely published it. The stock of investigators in the country was rapidly increased. The industries and the arts felt the effects. In 1912 there were 1,703 of these doctorates conferred there, 705 were on science and 355 in chemistry. How could such a country stand still in industry? Last March, Lord Haldane, addressing a teachers' meeting in London, said:

> We are behind the level which has been reached by several of our competitors, a level which will put us in peril. We cannot dissociate national progress

from the basis of knowledge, even when it comes to the question of making money.

This conclusion is only a year old, but it is being proved.

In addition to the very helpful and important university methods of Germany, there should continue in America, beyond what is done by government laboratories and bureaus, the natural extension of the ideas exemplified by the cancer research laboratories and hospitals, the Rockefeller Institute for Medical Research, the Carnegie Institution, the Smithsonian undertakings and others.

Here also a start has been made in such work as Dr. Duncan inaugurated in the Mellon Research Laboratory at Pittsburgh and at the University of Kansas, in the very recent Brush endowed fellowships at the Nela Park laboratories, and in the Mayo brothers endowment at the University of Minnesota.

Dr. Woodward, President of the Carnegie Institution, has recently said, "Successful research requires neither any peculiar conformity nor any peculiar deformity of mind. It requires rather peculiar normality and unusual patience and industry." This certainly applies as well to the researches of an Edison, devoting his life to the immediate utilities, as to the abstract researches of the mathematician. It is for this reason that research ought to and does succeed in its applications in the case of many industries. In the industrial research laboratories, normality, patience and industry are apt to be encouraged. Interruptions are there at a minimum. Equipment, power, facilities and the rest are made a matter of some one's business. On the other hand the universities and colleges, which are forced to combine with short hours and short years the teaching of science and the methods and habits of research, are still our foremost organized research institutions. It seems possible that manufacturing companies may offer in the future nearly as great assistance to the increase of useful knowledge. Cooperation between laboratories of research in universities and industries has already been the subject of considerable study. There is a committee of one hundred of the American Association for the Advancement of Science which was appointed to encourage it. Naturally, with so great an undertaking, the progress may be slow. It is certainly possible for industrial research laboratories to economically add to scientific knowledge and to grow in the process. This fact is being recognized.

It is unfortunately true that most of what we may call the new knowledge in physical science of the past decade has had to cross the Atlantic for us. No one knows this better than those Americans who make the most use of it. The fundamental knowledge behind almost every utility which Yankee ingenuity has assisted, grew on older soil than ours. The list is almost discouraging to an American. The encouraging view to take is that we have it within our power to force the future to write different history. It is unfortunately quite safe to predict, for example, that just as most of our technical advances of the past can be traced tc early fundamental discoveries in academic fields in Europe, so also we will have to see here future applications of still more modern European scientific thought. A wonderful list of useful results, processes, products, conveniences, cures and economies are sure to be produced by applications of the new knowledge of such things as radium, X-Rays, wireless waves, electrons, crystal structure, atomic numbers, canal rays, none of which were "made in U. S. A."

In physical science there is but little chance that our country will do its full share for years to come. If the wisdom of attempting it, rather than confining attention to short-sighted application of research to pressing commercial problems can be gradually recognized, the future is assured. It is surely the duty of our American research laboratories to contribute effectively in the advance of knowledge, and particularly is this true of those richly endowed with men, new materials and appliances.

And so I return to the cardinal point in any suitable consideration of research in its relation to our industries. Search for new knowledge is the insurance for the future of the industries. Many of them will later be manufacturing things not even conceivable today. The past has proved it. Most of the present products will, like the ox-yoke and flail of our grandfathers, be replaced in our factories by utilities more fitting to our new needs and less exhaustive of our energies and assets. This change is practically continuous. Technical complacency is like the mercuric chloride tablet taken internally—it means a lingering suicide. The incandescent lamp business will serve me for illustration, because I am more familiar with it than with others. I have seen whole factories entirely overhauled a number of times in the past few years, in order to make the newest lamps. Not only have entire floors of com-

plicated and expensive machines for making carbon lamps been thrown out and new machinery for making metal filament lamps installed, but before packing cases containing new machines could be opened and unpacked in the factory they have been thrown out as useless, as the advance from squirted metal filaments to drawn wire filaments proved the better way. Before the limit of factory efficiency on vacuum lamps could be reached, the introduction of nitrogen into the lamps brought the factories an entirely new factor, and now, before the consumers have more than commenced to feel the effects of the nitrogen-tungsten lamps, the manufacture of argon and its introduction into the incandescent lamp becomes a reality. If the research laboratories which discovered the means for bringing about these changes, with their corresponding economies, could tax the consuming public a cent for every dollar thus saved to the public, the laboratories would receive over a million dollars a year to spend for further research. This is not written in a spirit of dissatisfaction at all, but rather to point out what is probably true in many fields. The people are the ones most interested in research, though they may not know it. It is easier seen in therapeutic and curative research, but even there the more ignorant fail to realize the great lasting value of such work.

Bacon wrote:

> For man, being the minister and interpreter of nature, acts and understands so far as he has observed of the order, the works and mind of nature, and can proceed no further: for no power is able to loose or break the chain of causes, nor is nature to be conquered by submission: whence those twin intentions, human knowledge and human power, are really coincident; and the greatest hindrance to workers is the ignorance of causes.

MOTION STUDY AS AN INCREASE OF NATIONAL WEALTH

By Frank B. Gilbreth,

Providence, R. I.

There is no waste of any kind in the world that equals the waste from needless, ill-directed and ineffective motions, and their resulting unnecessary fatigue. Because this is true, there is no industrial opportunity that offers a richer return than the elimination of needless motions, and the transformation of ill-directed and ineffective motions into efficient activity.

This country has been so rich in human and material resources that it is only recently that the importance of waste elimination has come to be realized. The material element received the first consideration, and in the comparatively few years during which the subject has received attention, an enormous amount has been done to conserve natural resources, to economize in the use of materials, and to utilize the by-products of industiral processes.

The human element is now receiving long-delayed attention. Vocational training, vocational guidance, better placement and better working conditions have become subjects for serious consideration in all parts of this country and of the world. Savings in human energy are resulting from these investigations. But the greatest saving in time, in money and in energy will result when the motions of every individual, no matter what his work may be, have been studied and standardized.

Such studies have already been made in many trades, and have resulted in actual savings that prove that the results of the practice confirm the theory. In laying brick, the motions used in laying a single brick were reduced from eighteen to five, with an increase in output of from one hundred and twenty bricks an hour to three hundred and fifty an hour. In folding cotton cloth, twenty to thirty motions were reduced to ten or twelve, with the result that instead of one hundred and fifty dozen pieces of cloth, four hundred dozen were folded, with no added fatigue. The motions of a girl putting paper on boxes of shoe polish were studied. Her methods were changed only slightly, and where she had been doing twenty-four boxes in forty seconds, she did twenty-four in twenty seconds,

with less effort. Similar studies have cut down the motions not only of men and women in other trades but also of surgeons, of nurses, of office workers; in fact, of workers in every type of work studied.

Motion study consists of dividing work into the most fundamental elements possible; studying these elements separately and in relation to one another; and from these studied elements, when timed, building methods of least waste.

To cite a specific example: The assembly of a machine is the piece of work under consideration. The existing method of assembling the machine is recorded in the minutest detail. Each element of the assembly is then tested—the method used in handling the element being compared with other possible methods. In this way, the most efficient elements of an assembly are determined; and these elements are combined into a method of assembly that, because it is the result of actual measurement, is worthy to become a standard. Such an assembly is that of the braider, manufactured by the New England Butt Company. As a result of motion studies made upon this, where eighteen braiders had been assembled by one man in a day, it now becomes possible to assemble sixty-six braiders per man per day, with no increase in fatigue.

The accurate measurement involved in getting results like this includes three elements. We must determine: first, the units to be measured; second, the methods to be used; and, third, the devices to be used.

The unit of measurement must be one that of itself will reduce cost, and should be as small as the time and money that can be devoted to the investigation warrants. The smaller the unit, the more intensive the study required. The methods and devices to be used are also determined largely by the question of cost. Naturally, those methods and devices are preferable which provide least possibility of errors of observation. Such errors have been classified as of two kinds: first, errors due to instruments; and, second, errors due to the personal bias of the observer. The newer methods of making motion studies and time studies by the use of the micromotion method and the chronocyclegraph method exclude such errors. Fortunately, through an improvement and cheapening of the devices, it is now possible to make accurate records of motions, even when no great outlay for the study can be afforded.

The micro-motion method of making motion studies consists of recording motions by means of a motion picture camera, a clock that will record different times of day in each picture of a motion picture film, a cross-sectioned background, and other devices for assisting in measuring the relative efficiency and wastefulness of motions. Suppose the process of assembly before cited is being micro-motion studied: The assembler is placed before the cross-sectioned background; the micro-motion clock is placed where it will record in the picture, yet not disturb the worker; near it is another clock which serves as a check on the accuracy of the special clock. The assembler, who has been rated a skilled worker under the old method, naturally does the best work possible, since a record is being made of his performance. The observer operates the motion picture camera, which, however, allows him freedom to observe the assembly process continually, and to note possibilities for improvement. From the data on the film and the observations of the observer, an improved method can be formulated. The standard method is seldom derived from the work of one observed worker only. It has been noted that *the ideal method seldom lies in the consecutive acts of any one individual;* therefore, many workers are observed before the final standard is deduced.

These micro-motion records give all the data required except the continuous path of a cycle of motions. This lack is supplied by the chronocyclegraph method. The chronocyclegraph method of making motion study consists of fastening tiny electric-light bulbs to the fingers of the operator, or to any part of the operator or of the material whose motion path it is desired to study. If it is merely the orbit of the motion that is to be observed, a photograph is made of the moving part to which the light is attached during the time that this part is performing the operation. If the direction, relative time, and relative speed are to be noted, the path of light, through controlled interruption of the circuit, is made to consist of dots or dashes, or a combination of the two, with pointed ends, the point showing the direction.

Through the micro-motion studies and the chronocyclegraph studies, then, the expert formulates the standard method. It is important to note the changes which the installation of a standard method implies. This method consists of improved motions, and

implies, first, changes in surroundings, equipment, and tools; and, second, changes in the type of worker assigned to do the work.

During the motion study of the assembly, it was found that more efficient motions could be made if the machine assembled was placed on a special table, which could be turned on its side and transformed into a lower table, after the base group of the machine had been assmbled. It was also found that speed was gained and fatigue eliminated, when the parts of the machine were arranged in an obvious sequence on a vertical packet. These devices were immediately supplied at little cost and with great result in saving. Through these devices, and the other changes made by motion study, it became possible to accomplish over three and one-half times as much assembly as had previously been done. Such changes are typical, and it is typical that the inventions *result from* the motion study.

As for the type of individual suited to the work, the simplification of the process and the reduction of the motions to habits often make it possible to utilize workers with less initiative and skill, assigning the more skilled workers to a higher type of work. In the case of the assembly, the original assemblers were retained and enabled to do much more work with less fatigue. It has also been possible to train inexperienced men to assemble in much less time and with less effort than was formerly the case.

The result of the introduction of motion standards is an increase in output and wages, and an accompanying decrease in cost. The decreased cost and the increased wages both depend, of course, on the increased output. The output is increased, because the motions used to make any one unit of the output are less in number and more efficient in results. The average cost of output increase is sufficient not only to provide for the higher wages necessary to induce the workers to do the amount of work prescribed, and to enjoy doing it, but also to allow of at least enough profit to the management to cover the cost of the investigations that resulted in the standard.

The *quality* of the output is maintained through a new type of inspection, which considers not only the output itself, but the elements—material and human—which result in that output. Nothing is a higher guarantee of quality than insistence on a standard method.

Along with the laboratory investigations from which motion-study standards are derived, goes a general campaign to arouse every individual in the organization to think in terms of elementary motions. Such simple office equipment as pencil holders are motion studied, and every member of the organization is encouraged to observe and record his own motions in performing the most elementary of operations. Motion study may be carried on with no devices, and everyone is expected to know how to make at least the preliminary investigations. In this way, the spirit of motion economy grows throughout the entire plant, with a consequent elimination of waste motions and a growing interest in the more scientific methods of motion study.

What, now, are the results of this motion study upon the individual men doing the work, upon the factory group, upon the industrial world and upon society at large? The men themselves become more efficient. They become specialists—skilled workers. They learn the motion-study method of attack, and are thus more fit to undertake any type of work. They learn to think in elementary motions, and to eliminate waste in every activity of their lives. The increased output of each individual worker does not result in the employment of less men in the plant. The transference of skill that maintenance of standards implies, means that many teachers are needed. These come, naturally, from the ranks of the skilled workers. The planning that is necessary is also usually done by workers promoted to the planning department. At present, at least, the demand for men trained under motion study is far larger than the supply; it will be for years to come—certainly until the increased output results in the increased demand which is its inevitable consequence.

The industrial situation is bettered through the general spread of the ideas of waste elimination, and through the practical application of its principles in whatever relations those trained under it may enter. How far this influence upon the industries will extend will depend entirely upon the amount of work done by individuals, and upon their coöperation. At present, many individuals are engaged in, or are at least interested in, motion study and waste elimination. But there is not the proper degree of coöperation. Such coöperation can only come as motion study becomes a matter of interest to society at large. The whole social group is already being affected

by the results of motion study. One typical result is the gradual filling in of the gap between the school and the plant. An intensive study of motions is proving that there are far greater likenesses in trades, and even professions, on the mechanical side, than we have ever believed possible. The demand of the industrial world will be more and more for young workers trained to be finger-wise, with a knowledge of the fundamentals of motion economy, and with an understanding of the relationship between efficient motions and success in the industries.

The industrial world is becoming more and more definite in its requirements for industrial training. This is making it possible for all types of schools to give their pupils a training which enables them to fit into working conditions without the customary, preliminary jolt, and months and years of adjustment. The training required is so general, yet so definite, that it may well prove an important part of the training of every young man or woman, whether he goes ultimately into the industries or not. This training is being given not only in the technical schools and in the trade schools but also to some extent, at least, in the ordinary public schools. It consists of making every pupil, to as great an extent as possible, "finger-wise," that is, of training his muscles so that they respond easily and quickly to demands for skilled work. With this training goes an appreciation of the importance of such "finger training," and of its relation to motion economy. The pupils are also given an appreciation of the problems of industry, and of the relation of these problems to social development.

An effect of motion study in the industries upon society is its influence toward spreading the belief that real efficiency considers and conserves the human element; that it makes fatigue study imperative; and that its fundamental idea is conservation, not exploitation.

The great need today, as in all fields where progress is to be made, is education. The community as a whole must be educated as to the importance of motion study, and as to the possibility of every man and woman making such motion study to some extent for himself. The technical press and the press generally are doing much to spread these ideas. Much is also being done by the colleges, where many are studying and teaching the subject. Such widespread education is absolutely necessary before we can hope for

the reclassification and standardization of the existing trades, which is a necessary future step. The trades must be reclassified, according to the amount of skill involved in the motions used; and must then be standardized in order that the necessary training for entering them and succeeding in them can be given. As an example of reclassifying a trade, we would recommend, for example, for brick work, five classes:

Class A—Ornamental and exterior face brick and molded terra cotta.

Class B—Interior face tiers that do not show at completion, where strong, plumb and straight work only is needed.

Class C—Filling tiers where only strength is needed.

Class D—Putting fountain trowels and brick packs on the wall near the place, and in the manner where the other three classes can reach them with greatest economy of motion.

Class E—Pack loaders, brick cullers and stage builders.

The pay of the A and B classes should be considerably higher than is customary for bricklayers. The pay of the C, D, and E classes should be lower than is customary for bricklayers, but much higher than the pay of laborers. This classification will raise the pay of all five classes higher than they could ever obtain in the classes that they would ordinarily work in under the present system, yet the resulting cost of the labor on brickwork would be much less, and each class would be raised in its standing and educated for better work and higher wages. In the case of brickwork this new classification is a crying necessity, as the cost of brickwork must be reduced to a point where it can compete with concrete. Improvements in making, methods of mixing, transporting, and densifying concrete in the metal molds of today have put the entire brickwork proposition where it can be used for looks only, because for strength, imperviousness, quickness of construction, lack of union labor troubles and low cost, brickwork cannot compete with concrete under present conditions. Having sub-classified the trades, the second step is to standardize them. And both classification and standardization demand motion study.

The other great need, besides education, is, then, a bureau of standards, where work done in motion study can be collected, classified, and put into such form that it will be available to everyone. There is an enormous waste, at present, from repeating investigations

along the same lines of work. There is not only the waste from the actual repetition involved, but also the fact that the time utilized in doing work already done could, instead, be devoted to the original work that is sadly needed. It is the work of the United States government to establish such a bureau of standardization of mechanical trades. The standards there derived and collected would be public property, and original investigators could invent from these standards upwards. Most important of all, perhaps, these standards would furnish the ideal means for teaching or transferring skill to the young workers who desire to enter a trade.

The reclassification of the trades and the bureau of standardization are, then, the two great needs for motion study development. But these will come only when the individuals interested apply motion study to their own work, and show willingness to coöperate with others.

The industrial opportunity afforded by motion study is not, then, some great future opportunity of which we dream, or some remote and inaccessible opportunity for which we must collectively strive. It is an opportunity ready, here and now, to be grasped by each one of us individually—and it is the greatest industrial opportunity that this century affords.

LOW WAGES AND THE LOW WAGE ENVIRONMENT

By Frank P. Walsh,
Chairman, United States Commission on Industrial Relations.

A thought occurs to me as I look about the world and observe the great forces that have been created within the last decade to work for the betterment of mankind. I see great organizations of men and women well equipped, thoroughly provisioned, sufficiently financed and backed by a moral weight such as the world never before saw and has not yet realized. It seems to me that those of us who are earnest and trying to be thorough in our efforts for better things for all have a chance before us such as no other portion of mankind ever before had.

Another thought, however, occurs to me, and that is, that we have a divided army. A common enemy confronts us; a solid phalanx—the allies of sin and suffering, of disease and premature death. But look at our army. We are dressed each in a different uniform. Bad tactics on our part divide our forces. We travel parallel roads. But the movement of our divisions has not taken the formation we desire. We cannot make a frontal attack in force and carry by storm the common breastworks of the enemy.

We have great organizations which are fighting with scientific coolness against disease. We have religious bodies battling zealously for a purer life for us all. We have hosts of women struggling for the ballot in order to give more certain and definite aid to us. We have great philanthropies engaged in an effort against distress. We have many agencies which are making war on the evils of mankind. But we fight, paired off, as it were, religion against sin, science against disease, social justice against false economics, philanthropy against suffering. Such is the line-up for the fray.

Let us have a new declaration of war and a grand mobilization! I hold that every organization we have for good should strike a blow at the main offender—

Low wages and the resultant indecent standard of living for a thinking and toiling race!

We should unite all our agencies of betterment and reform and make an attack in force on this common enemy.

The victims of sin and suffering, disease and premature death are merely the dead and wounded in the great struggle for existence.

When we divide our forces into three great battalions: those working for better economic conditions, those working for better social conditions, and those working for better moral conditions, we make a monumental blunder. Lines cannot be drawn between the economic, social and moral life of the people. They rise or fall together and economic conditions always dominate. The greatest influence on life is produced by environment. The only factor which enters into environment is the economic factor. The income of a family absolutely determines its place of living, its manner of living and its interpretation of life. Persons will vary in mental type, in breadth of vision, in clarity of view, in outlook on life and its hopes and destinies. That is inevitable. But these, too, are tempered by environment.

The Economic Factor

So well recognized is this fact that while the thought may strike us as semi-new, it is one that everybody realizes. You have no hesitation in saying that there are various classes. What are classes? They are human beings of various strata. They actually dwell on plateaus of various heights, according to popular and universal conception. Why? Simply because of the economic factor in the lives of the various classes. Each takes on the color of its class according to its income. The economic factor decides for each class the texture and value of its clothing, the quality of its food, its place of residence, its associates, its tastes, its amusements; indeed, every outward aspect of life is lived practically the same way by each individual in each class. And the economic factor enters more largely into the mental aspects of the individual than it does into his physical aspects. His belonging to any of the various classes practically determines for him his views on morals, sociology, sin, and suffering. If you will analyze your views, you will find that they practically coincide with those of persons of your own class.

This class feeling is so strong that it breaks down the mental and moral fiber of the individual. You will note among your own friends who have had the misfortune or fortune to rise or fall from one class to another, an entirely changed set of opinions about every

matter that vitally concerns society. They no longer hold the opinions they had while a member of another class, but consciously or unconsciously assume the mental colors and hold aloft the class flag of their new fellows.

The point I am trying to make is that if those who are concerned with social and moral betterment would join in with those of us who are primarily concerned with establishing economic justice; if they would help to force better wages, a decent standard of living, a better environment, more leisure and less laborious situations, on ninety per cent of the people, we could cut their work at least in half.

I agree with Henry Ford to this extent: That the sane and well nurtured person is instinctively good and primarily honest. He may be the victim of greed and forced to the same attitude as that used by his oppressors, but that is usually because he is economically powerless and forced to go with the tide.

We should begin the new warfare by getting our conceptions "on straight." At present we have a veneration for wealth in this country that has made concrete wealth supra-legal. It has usurped powers to itself that in the course of generations have become practically recognized by the great public as belonging to it. The first principle is shown in the law allowing a man to engage in a business and wrest his profits, not from the business, but from what should be the just earnings of his employees. We look with as much pride and envy on the man of wealth who has literally starved his employees and brought about a degenerate and subnormal new generation as we do on the man who has amassed a fair competency and at the same time given to those working with him an honest share of the profits of the enterprise. We regard with greater admiration the so-called captain of industry who has shot his way to tremendous riches through the ranks of his employees than he who has gained economic independence by an invention which has lightened toil and sweetened life.

New Maxim for Society

What we need is a saner appreciation of the facts of life. We have a perfect right to withhold the protection of organized society, in its governmental or legal function, from one man who is doing many of us hurt. The old maxim of "the greatest good to the greatest number" has been recast into the idea that the powers of

government should be exercised or withheld for the greatest good to the least and weakest of mankind. If this new concept breaks down the methods by which enormous fortunes are secured, the world is better served. Great fortunes are as active a menace in themselves as they are to their possessors. They lead to greater and greater travesties on justice and a more insane vision of power by those who control them. They are gold gone mad with lust of conquest. The owners of such fortunes must have, indubitably, at some time or the other crossed the line of true economics, ethics, equity and the criminal law. An enormous fortune is a wrong proved by itself.

Those guilty of economic abuses for gain may be divided into these classes: Those who, by corruption and other devious means, secure franchises and special privileges of various sorts to exploit entire communities and whole sections of the country; the men who, by similar methods, secure a grip upon land and other natural resources, the common inheritance of all, to selfishly exploit the same, or hold it away from the beneficial use of their fellow-man; the men who work thousands of other men in dangerous and unhealthful factories and mines; the men who employ women and children in unhealthful occupations, or in insanitary workshops; the exploiting employers who impose upon their helpless workers long hours at wages which will not allow for that sweet contentment of mind which makes of labor a joy; the man who sells decayed or adulterated food; the man who robs his own employees of the product of their toil and gives away the money in showy benefactions and stupendous foundations; the men who through organizations, whether termed benevolent, commercial, employers' or what not, combine to coerce and browbeat other men in their effort to organize and obtain by concert of action a just length of work day, decent conditions and compensatory wages; the bankers and financiers who foster "watered" stocks and force employees of large industries to work for low wages because the earning power of the companies has been absorbed in advance; and last, but by no means least, that large class of lickspittles who have little or nothing themselves, but side in with and work for bad conditions, because they get, or vaguely hope to get, a moiety of the general stealage.

Worst of All Reactionaries

The latter class is so large and their combined efforts so vitally assist in keeping alive rotten social and industrial conditions, that they deserve to rank ahead of several of the divisions first named. They are the oft-dubbed "Little Brothers of the Rich"—usually visionless clerks, briefless lawyers and so-called "leaders of thought," who ought to be butlers. To them every protest against wrong is "demagogic." They "view with alarm" the socialistic tendencies of our times, and the "growing disrespect of the people for vested rights." Usually upon meager salaries themselves, hopelessly submerged, but submissive and servile, they are the product of false teaching, mean ambition, lack of thought, personal weakness, and victims, generally, of circumstances beyond their control. Because so many of them are not conscious of wrongdoing is the only reason I have for placing them among the minor offenders.

Such men as form these various divisions are the voluntary offenders against economic justice and the laws of the land. They make a profit, or hope to, or help to through bad economics and violated laws.

But look at the other side of the economic ledger. There you will find the millions who are the victims of these profit-mongers and law-breakers,—the involuntary offenders. They are the thieves, harlots, the weak, the deficient, the men and women badly poised mentally through shameful environment and poor food, stretched over generations, the near-zeros of civilization; the maimed, the crippled, the blind, the hereditary victims of disease and vicious habits, children of parents whose labor sapped them of the strength that should go to endow a future generation with a good brain and an adequate body; victims of drink who unavailingly have tried to snatch a few golden moments out of a gray world; children crippled in the streets and factories because organized society has not yet reached the plane where it adequately cares for its young; the survivors of war and the wretched victims of financial panics who have suffered because big moneyed men know that a money scare ever so often shatters values and makes it profitable to buy what others must sell to live.

I call all of this last named class involuntary offenders, because they drop naturally into that class through economic pressure and

environment. Many of them, of course, are not truly involuntary victims, but there is that in their makeup and in the breeding they have had that causes them to sink rather than dash themselves again and again against the harsh line-up of forces which life has presented to them.

I do not believe that anyone can study at first hand conditions as they exist today, and by these I mean the every-day facts of life as they affect the economic condition of mankind, and not thrill with the zeal of the proselyte in the cause of a better day. I believe that you can't reach a man's soul, any more than his heart, except through his stomach. It is positively shameful to hurl a "Thou shall not steal" at a hungry or ragged human being.

Let us all dress and have dinner before we talk of morals.

An element in life that has far-reaching consequences is that we are apt to live merely by comparison. We take as a matter of course the crowded East Sides, the Hell's Half Acres, and the other strikingly named districts in our big cities. We don't seek out reasons nor hunt for solvents. We see them from the time we are able to toddle until we die, without a proper emotion nor a sense—a gripping vital sense—that something is wrong. We regard them with the fearful complacency with which black death, diphtheria, smallpox and other dangerous diseases were regarded in by-gone days, as something inevitable and in accord with life.

The East Sides and the Hell's Half Acres are the foulest blots on civilization. They advertise that injustices and menaces to the health and well-being of communities are tolerated for the sake of profit. They show that property is in the saddle riding down human life. They prove that the tenants, giving up their lives in toil, cannot earn enough to be decently housed. And we stand for the sort of living they must have and the kind of wages they must take.

Shorter Course Charted

In placing economic conditions before moral questions, I do not intend to belittle the wonderful work that has been done in the world to help the unfortunate and to place obstacles in the way of those who would profit through the prostitution of men and women by trafficking in their frailties. It is to the glory of our race that thousands of men and women have gone out of their way to take part in this task, as arduous and thankless as any person

could essay. I am merely trying to point out that it is my belief that their objective is in much easier reach. I am trying to chart for them what I believe to be a shorter course to their haven. We know, as rational beings, that human misery, so universal as that caused by poor wages and viciously sinful hours of toil, is infinitely worse than the result of any individual's moral lapse or folly, degrading and vile though it may make the victim appear.

Napoleon said that an army marched on its stomach. He meant that it was only good for severe taxing of its strength as long as its larder was filled. He might have said it with equal truth of the entire race of men. The poorly nourished are weak comrades in a war on rotten industrial conditions, adulterated foods, vice, wholesale murder, or any other of those countless evils that have an economic basis.

Does this sound pessimistic? I hope not, for I am optimism incarnated. I believe the world is getting better every day. I believe more and more every day that a greater number of persons are becoming genuinely interested in the well-being of humanity than ever before, some from personal reasons, but more from that divine fire which a pure and undefiled love for even the lowliest of us inspires.

Some one has said there is more of the Christ spirit in the world today than ever before. The very aims that the honest battlers for the right under their different flags aspire to show that there is a mighty undercurrent—a soul movement, if you will have it that way—that is making for better things.

Let us fight for all the good we may achieve—whether religious, economic, social, moral; but I believe that every sincere soul should line up with every other sincere soul in a fight to a finish to lift from the world the weight of agony caused by insufferable conditions resulting from *low wages, the crux of bad economics.*

THE ADEQUACY OF AMERICAN WAGES

By Scott Nearing, Ph.D.,
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I. The Measure of Wage Adequacy

The adequacy of American wages, like any other question in social science, should be discussed in spirit of honest truth-seeking. Everywhere the problem is leading to endless and often to bitter controversy between employers and wage-earners, who ordinarily base their contention that wages are "too high" or "too low" upon tradition or prejudice rather than upon scientific analysis. The result is dissention and misunderstanding. The student of economics approaches the matter scientifically. First, he studies the wage facts; second, he decides upon some standard by which wage adequacy may be measured or judged; and third, he compares the prevailing wages with this standard in order to determine their adequacy.

The present study is based on three propositions which are fundamental to any consideration of wages:

1. Industry must pay a wage sufficient to maintain the efficiency of its workers.
2. Society must oppose any wage that leads to poverty, hardship or social dependence.
3. Wages must be sufficient to enable the worker and his family to live like self-respecting members of the community.

These three statements are so generally accepted that they require little elaboration. It seems evident that unless industry pays a wage that will maintain the efficiency of its workers, industry must deteriorate. It seems equally evident that unless society insists on a wage sufficient to prevent dependence, the family, the school, and the state must suffer. At the same time, if progress is to be made, the wages paid must make possible self-respect, while they stimulate men to activity. All three propositions are stated in terms of social expediency. The social justice of the present wage system will not be called into question.

Under the present social system, a man's wage must be a family

wage. The home is looked upon as the basic social institution. Each man is expected to make a home, and having made it, to earn a living sufficient to allow the wife to devote her time and energy to the care of the home and of the children.[1] While the mother presides over the home, the father must receive a wage sufficient to keep his family on a basis of physical health and social decency.

The family most frequently used in recent social studies consists of a man, wife, and three children under 14 years of age. Such a family corresponds in size with the average American family, the children are too young to work for wages, and their mother should be in the home and not at work in the factory. This family is sometimes called the "normal" or "type" family.

No single wage will provide health and decency for all families. Some women cannot keep a home on $40 a week that others can keep on $20. The ability and personality of the housekeeper are large factors in making both ends meet. However there is a minimum income below which the average woman cannot provide health and decency for those dependent upon her housekeeping.

II. What is the American Wage?

A discussion of wage adequacy begins, of necessity, with an analysis of wages. What is the American wage?

The manifest shortcomings of an "average" as a means of describing wages have led statisticians to the use of classified wages. Instead of saying that the wages of 1,000 men average $2.63, the statistician notes that of the 1,000 men, 28 receive a wage of from $1.00 to $1.49; that 324 receive a wage of from $1.50 to $1.99; and

[1] The extent to which the various sources contributed to family income in a group of 25,440 families is shown in the following table:

	Per cent
Husbands	79.49
Wives	1.47
Children	9.49
Boarders and lodgers	7.78
Other sources	1.77
	100.00

From *Cost of Living and Retail Prices of Food*, Commissioner of Labor, 1903, p. 51, Government Printing Office, Washington, 1904.

so on. By this means, a group picture is made of the amount received by all of the wage-earners.

There are a number of rather complete summaries of the wages paid in certain American industries—chiefly manufacturing.[2] A brief statement of some of the more important classified wage figures appears in the following table:

THE WAGE RATES OF ADULT MALES EMPLOYED IN MANUFACTURING INDUSTRIES

State or industry	Year	Total adult males	Cumulative percentages of adult males receiving wage rates per year of less than		
			$500	$750	$1,000
California [3]	1911	107,950	7	30	63
Iowa [3]	1912–13	48,710	12	61	87
Kansas [3]	1909	50,720	26	70	91
Massachusetts [3]	1912	420,524	28	67	90
New Jersey [3]	1911	243,753	36	71	89
Oklahoma [3]	1911	17,007	17	68	90
Wisconsin [3]	1909	141,218	32	77	94
Census [4]	1905	2,124,069	47	79	94
U. S.—Iron and Steel [5]	1910	172,706	8	60	85
U. S.—Textiles [6]	1910–12		60	90	95

The manufacturing industries of the north and east pay to the adult male wage-earners wage rates of less than $750 in seven-tenths of the cases, and of less than $1,000 in nine-tenths of the cases. With the exception of California, the percentage of men receiving

[2] The meager wage figures covering transportation, municipal utilities, mercantile establishments and mines indicate that the wages paid in the manufacturing industries are fairly typical of wages paid by other industries in the same locality requiring a like amount of ability or training. See *Income*, Scott Nearing, New York, The Macmillan Company, 1915, Chapter 4.

[3] Compiled from the Reports of the State Bureau of Labor.

[4] *Census of Manufactures*, 1905, Bulletin 93, *Earnings of Wage-earners*, Washington, 1908, p. 11.

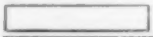
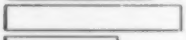
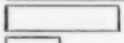
[5] *Report on the Condition of Employment in the Iron and Steel Industry*, Senate Document 110, 62d Congress, 1st Session, Volume I, p. xxvi.

[6] Compiled from the Reports of the Tariff Board, from the Report by the Federal Department of Labor on the Strike at Lawrence, 1912, and from the state reports.

less than $750, and the percentage receiving less than $1,000, are remarkably uniform. The one-tenth of the adult male wage-earners who receive wage rates of more than $1,000 a year are the income aristocracy of the wage-earning class. They are, for the most part, protected by powerful trade unions, by long terms of apprenticeship or by special training. They constitute a minority of the wage-workers about whom no question of wage adequacy will be raised. The present discussion will concern itself with the nine-tenths of the wage-earners who are paid wage rates of less than $1,000.

A diagram brings out, in striking form, the more detailed facts of the American wage scale. Massachusetts, one of the leading manufacturing states of the Union, reports the wage scale for a larger number of persons than any other state.

THE WEEKLY WAGE-RATES PAID TO 436,576 ADULT MALES IN THE MANUFACTURING INDUSTRIES OF MASSACHUSETTS, 1912[1]

Weekly wage	Adult males	
Under $10	126,011	
$10 but under $15	166,440	
$15 but under $20	98,839	
$20 but under $25	31,416	
$25 and over	13,870	

The diagram is illuminating. Almost exactly four-fifths of the adult males at work in one of the largest manufacturing states of the Union are receiving wage rates ranging from $8 to $20 per week. Ten men in 100 receive $20 per week or over and three men in 100 receive $25 per week or over. The great bulk of the men at work in the manufacturing industries of Massachusetts are paid a wage rate of less than $20 a week.

The fact should be emphasized that these figures show not what people earn, but the amounts paid by industry to those who do its work. The wage scale is set in each industry. Let 1,000 seek places in the factories of Massachusetts. They would find a wage scale already in existence that would pay to 500 of them less than $15 per week and to 900 of them less than $20 a week.

Again, the wage figures do not represent the amount actually received by workers. The figures for annual wages were secured

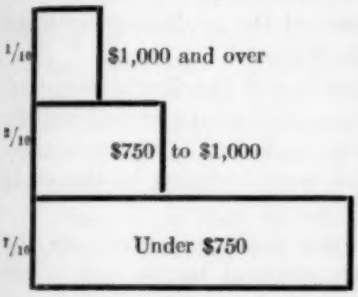
[1] *Statistics of Manufactures for Massachusetts*, 1912, Boston, 1914, p. 84.

by multiplying the weekly wage rate by 52. Most wage-workers do not earn in a year 52 times the weekly wage rate. Unemployment, varying in intensity from one trade to another and from one year to another, reduces yearly earnings a tenth, a fifth, or sometimes even a third.[8] Wage-workers earn wages only while they work and work in modern industry is a gravely uncertain quantity.

The American wage—the amount paid by American industry to its workers—may be characterized briefly in these terms. A comparatively small percentage (from 5 to 10 in 100) of the persons gainfully employed in modern industry are on a salary basis. The vast majority of the employees (from 90 to 95 in 100) are paid a wage or its equivalent. Among those who work for wages, the great majority (about nine-tenths of the adult males) receive wage rates of $1,000 per year or less. The wage rates of two-thirds of the males fall below $750; a third below $500. These statements make no allowance for unemployment, which is a constant, irreducible factor. Unemployment due to lack of work alone is generally met with.[9] Add to this the unemployment resulting from sickness, accidents, and other personal causes, and the proportion is still higher.

Summary of Wage Rates in American Industry

(No allowance for unemployment)



Are these wages adequate? Do the amounts paid by American industry enable the worker to support a wife and three children decently? Three phases of the matter will be considered:

[8] *Work and Wages*, S. J. Chapman, Part II, New York, Longmans, Green & Company, 1908, Chapter 15.

Unemployment in the United States, Scott Nearing, Quarterly Publications of the American Statistical Association, Vol. II, September 1909, pp. 530–535.

[9] An idea of the extent of unemployment may be gained from the reports of the New Jersey and the Massachusetts Labor Bureaus, showing the number of days worked in the various industries. See Bureau of Statistics of New Jersey, 1913, Paterson, 1914, pp. 125–126; also statistics of manufactures for 1911, Bureau of Statistics for Massachusetts, Public Document No. 36, Boston, p. 137.

1. The adequacy of wages to provide health and decency for a man, wife, and three young children.
2. The adequacy of wages in terms of up-to-date business accounting and business practice.
3. The adequacy of wages to meet current social obligations and social standards.

III. The American Wage and Physical Efficiency

The adequacy of wages may be tested in terms of the health and decency which are involved in the maintenance of physical efficiency. If industry is to support its workers, if society is to see to it that families are not forced to depend upon charity, wages must be sufficient in amount to enable the wage-earners to buy health and decency. At the present time, in the United States, the wages paid to a considerable portion of the adult male workers are insufficient to permit decent family living.

A number of attempts to ascertain the cost of a decent standard of living have been based on the assumption that physical health, education up to the age of fourteen, and the other minimum requirements of modern American life were included in the term "decency."

There is a certain minimum of food, clothing, shelter and the other necessaries of life below which physical health and social decency are impossible. That minimum exists in terms of bread and butter, shoes, overcoats, medical attendance and school books. It is fixed by the demands of nature and by the standards of society, wholly independent of cost of price; therefore any discussion of the cost of a decent living begins with an analysis of the various items which comprise living decency. The amount of food required by the man or by his family can be fixed with scientific accuracy. The amount of clothing is not susceptible of such an accurate statement but it can be designated in terms of a certain number of garments per year. Most students of the standard of living have agreed that three or four rooms are necessary to house a family of five people decently. They have, likewise, made an allowance for medical attendance, for saving, for insurance, and for recreation.

After the number of things necessary to maintain a decent standard of living has been decided upon, the question of cost is raised. A family requires so much flour, so many pairs of shoes, and so many rooms. What is the least amount for which these

things can be obtained? The answer to that question, worked out for a number of eastern cities, has placed the cost of a decent living for a family of five at from $750 to $1,000.[10]

The amount fixed by the recent standard of living studies is a minimum. One of the most complete investigations—that made by the federal government—allowed $744 per year for the maintenance of a family of five in a Massachusetts city.[11] Six-sevenths of this entire amount was expended for food, clothing and shelter, leaving only a little more than $100 a year for all of the other items in the family budget.[12]

The Chapin study was made for the purpose of determining the cost of a fair or decent standard of living in New York City. In summing up the results of his study, Dr. Chapin writes:[13] "An income of $900 or over probably permits the maintenance of a normal standard, at least so far as the physical man is concerned." Regarding incomes below $900, Dr. Chapin makes the following statement: "Whether an income between $800 and $900 can be made to suffice is a question to which our data do not warrant a dogmatic answer."

One other less complete, but highly satisfactory study of standards of living has been made in the Stock Yards District of Chicago. After an exhaustive investigation, the authors report

[10] *Financing the Wage-Earner's Family*, Scott Nearing, New York, B. W. Huebsch, 1911, Chapter V.

[11] *Woman and Child Wage-Earners in the United States*, Senate Doc. No. 645, 61st Congress, 2d Session, Washington Government Printing Office, 1911, Volume XVI, p. 244.

[12] The exact apportionment of this sum was as follows:

	Expenditures	
	Per week	*Per year*
Food	$6.02	$313.00
Housing	2.52	131.00
Clothing	2.63	136.80
Fuel and light	.82	42.75
Health	.22	11.65
Insurance	.35	18.25
Sundries	1.75	90.90
	$14.31	$744.35

[13] *The Standards of Living Among Workingmen's Families in New York City*, R. C. Chapin, New York, Charities Publication Committee, 1909, p. 245.

that the minimum amount necessary to support a family of five efficiently in the Stock Yards District is $800 per year.[14]

There have been several other investigations and estimates, less complete and less conclusive, which lead to the same general conclusion, namely, that in the industrial cities of the northeastern United States, the cost of a decent standard of living for a family consisting of a man, wife and three young children, varies from $750 to $1,000.

Are the wages paid to American wage workers sufficient to maintain health and decency? Compare the two statements:

Cost of decent Family living in Eastern industrial cities, $750 to $1,000 per year	The wages of adult males —(Allowing for unemployment) 4/5 less than $750, 95/100 less than $1,000

Nothing could show more conclusively the frightful inadequacy of American wages. The present wage scale, paid to workers by American industry, does not enable millions of them to give a family of three young children the simple decencies of life that are necessary to the maintenance of health and efficiency.

IV. The American Wage as a Business Proposition

The wages paid by American industry to a great body of its workers are inadequate to provide health, efficiency, and decency for a moderate-sized family. They are even more inadequate when they are considered from the standpoint of up-to-date business practice.

Many a successful business man, who is confident that "the workers are paid all that they are worth," and that "wages are far too high, anyway," has never stopped to analyze wages from a strictly business point of view. The wage-earner is, in reality, a business man. His place of business is his home. The object of his business activity is the rearing of a family in good health and with a generous sprinkling of education. To this end, the worker labors during most of his adult life.

Business men have worked ardently to safeguard business interests. They have talked a great deal about the importance of

[14] *Wages and Family Budgets in the Chicago Stock Yards District*, J. C. Kennedy, and others, University of Chicago Press, 1914, p. 80.

business stability; of conservatism in finance; of the returns due a man who risks his wealth in a business venture; and of the fundamental necessity of maintaining business on a sound basis. After centuries of experiment, they have evolved what they regard as a safe and sane method of financial business procedure. Every successful business man tries to live up to the following well-established formula:

First. He pays out of his total returns, or gross receipts, the ordinary costs of doing business—materials, labor, repairs, and the like. These payments are known as running expenses, or up-keep.

Second. After up-keep charges are paid, he takes the remainder, called gross income, and pays out of it the fixed charges—taxes, insurance, interest and depreciation.[15]

Third. The business man, having paid all of the necessary expenses of doing business (the running expenses and the fixed charges) has left a fund (net income) which, roughly speaking, is the profits of the business. Out of this net income, dividends are paid, improvements and extensions of the plant are provided for.

Fourth. The careful business man increases the stability of his business by adding something to his surplus or undivided profits.

Every modern business man disposes of the total receipts of his business in some such way as that indicated. The business man who cannot pay his running expenses, fixed charges and dividends, and show some surplus, is scanned critically. Should he fail to pay dividends, he is considered unprosperous. If he does not meet the interest on his bonds, he is taken into court and declared a bankrupt. Running expenses, fixed charges, dividends and surplus are not merely fair; they are essential to business success. They are considered a "right" by the organizers of every legitimate business.

Suppose the American working man, who is striving to support a family on a wage ranging from $1.50 to $4.00 a working day ($450

[15] A depreciation charge is one that is made against the wearing out of capital. A paper manufacturer buys a machine for which he pays $1,000. Experience tells him that this machine will wear out in 10 years. Therefore the manufacturer sets aside each year, a sum which, at the end of 10 years, will equal $1,000 (a new machine). In this way, the business man keeps his capital intact. While the individual machines, tools, and the like do wear out, the accounts of the business are so kept that these pieces of capital will be automatically replaced when they are too old for use. The depreciation charge is recognized everywhere as a legitimate and necessary fixed charge on business.

to $1,250 per year), should apply to the financing of his family affairs, the financial formula adopted by any well-managed modern business. Since he must allow for running expenses, fixed charges, dividends and surplus, he would proceed as follows:

First. He would pay, from the total family income, the family running expenses—food, clothing, housing, medicine and the like.

Second. From the remainder, his gross income, he would take interest on the investment which has been made in bringing up and educating his wife and himself; insurance against all reasonable contingencies, such as sickness, accident, death, and unemployment; and a sum for depreciation sufficient to compensate for the inevitable decrease in his earning power, and for the old age during which he and his wife can no longer earn anything.

Third. The remaining net income should be sufficient to enable the worker to pay himself dividends proportionate to the excessive risks which he runs in bringing a family into the world and attempting to rear it; and sufficient to add at least something to the surplus which the family lays aside to provide against such untoward events as births, deaths, and prolonged sickness.

The workman who conducted his affairs on this basis would be a sound, sane, safe financier. He would also be a seven-day wonder. If the preceding section established any point, it was that a large percentage of wage-earners receive a wage which will not pay even decent running expenses. Any business man who attempted to conduct a business on a basis that would pay only the flimsiest of up-keep charges would be regarded as a subject for mental treatment, yet the bulk of American workers find themselves in exactly that predicament. They are conducting a family business on a basis that will not pay reasonable running expenses. The legitimate fixed charges of business—interest on the investment, adequate insurance, and depreciation—are far above the reach of most wage-workers who have a family of five to support. The ordinary worker's family is a bankrupt concern—it cannot meet even the interest on its bonds. And dividends? The ordinary worker is thankful if he can pay the bills incident to up-keep. Dividends are a luxury of which he does not dream.

Place before any levelheaded man of affairs this proposition: "I have a business which is barely able to pay running expenses. We can't meet our fixed charges, and our wildest flights of imagina-

tion have never carried us as far as dividends and surplus. Will you join in the venture?" The statement is grotesque, yet it sets forth the financial position of the majority of American wage-earners.

One further point should be noted. After the business man has paid running expenses and fixed charges, the remainder is income—"net income." The great mass of wage-earners who never receive enough to pay more than their bare running expenses have no "income" in the real sense of that word. They are getting mere up-keep, or subsistence.

As a business proposition, for a family of five, the ordinary American wage is absurdly inadequate. No business man would consider it. It violates every business standard which the practice of the modern man of affairs recognizes as legitimate. Every concept of modern business management cries "shame" at the very thought of the business proposition which the American wage-scale presents to millions of its workers.

V. The Anti-Social Nature of the American Wage

The health inadequacy and the business inadequacy of the American wage can be demonstrated statistically. The proof of the social inadequacy of wages rests upon more general considerations.

Society must develop a system of compensation which will stimulate industry and thrift among the people who do its work. A wage system or any other system of distributing the products of industry must be based on an adequate appreciation of this fundamental principle.

The first, and probably the most fundamental, social objection which may be raised against the present wage scale is that it fails very largely to stimulate the ambition of the worker. There are two reasons for this failure. On the one hand, the wage scale is so utterly rigid that the man doing good work is placed on the same footing with the man doing poor work; the enthusiastic worker is placed on the same basis with the indifferent worker. This holds true of piece-rate payment as well as of time-rate payment. The rule of most producing establishments is "anything that will pass the inspector." Furthermore, the individual may work as hard as he pleases, devoting all of his energy to the work in hand. Despite this, he is unable to raise his wage rate and very frequently is

unable to increase his wages. At the same time, industry is organized on such a large scale basis that the number of positions "at the top" is strictly limited. Among the employees of the American railways, for example, one in one hundred is an officer. The proportion is higher for manufacturing industries, although it is seldom that more than 10 per cent of the men employed in an established industry hold positions which involve even a moderate amount of responsibility and initiative.

The wage scale is fixed either by an agreement between the employer and the union, or by custom and common consent. No one even pretends that there is a definite relation between the values produced by the worker and the wage which he secures.

The worker is not paid in proportion to his product. Wages are never fixed on that basis, with this single exception—that no employer can afford to pay any more in wages than a group of men are producing in product. The law of monopoly, "all that the traffic will bear," is the law which fixes the American wage. An employer has a Scotchman working for him at $3 a day. An equally efficient Lithuanian offers to do the same work for $2. The employer is not in business for his health, and the work is given to the lowest bidder.

An employer never determines a wage by asking the question: "How much does this man produce?" Rather he asks, "What will it cost me to get another equally efficient person in his place?" It is the cost of replacement and not the values created in production which determines the wage that a man receives.

The phrase, "he gets all that he is worth," means merely this—that the employer is paying him as much as he has to pay another equally efficient person to do the same thing. Whether he is hiring bricklayers, bookkeepers, or coal heavers, the wage that he pays depends upon the supply and demand of labor. This law is excellently illustrated during a time of financial and industrial depression, when there is a surplus of labor and a dearth of opportunity for employment. Many industries at once reduce their wages because they are able to get all of the people that they want at a lower figure.

The wage contract, as it is called, knows no social morality and is based on no standard of social ethics. It is subject only to the law of supply and demand, and to the law of monopoly price. The employer pays his labor as little as he can. The worker de-

mands and gets as much as he can. Until recently, there has been no general idea that a minimum wage was a social necessity. The individual laborer bargaining with the employer made the best terms he could. If labor was scarce, he was successful; if it was a drug on the market, his wages were reduced to a starvation level.

Another consequence follows from the ruthless bargaining of the competitive labor market. The bargain takes place between the employer and a worker irrespective of social obligations. The consequences are doubly disastrous to the man with the family depending upon him. A common occupation, quarrying, for example, may be carried on by married or by single men. The employer does not even put himself to the trouble of asking whether the prospective employee is married or single, because that makes no difference if a man is handy with his tools. The man with a family is brought into active competition with the man who has no family obligations. The native-born head of a household must accept labor terms which are satisfactory to the foreign-born single man. Industry does not inquire into a worker's social obligations. It simply asks whether he is able to do the work, and at what price. The competition of the labor market does the rest.

Society demands and expects that men shall support families. The future of the state hinges upon the fulfillment of this presupposition. At the same time, the modern economic organization makes no attempt to assist the man who is bringing up a family to face the competition of the man who has no family dependent upon him.

There is no relation between the social (family) needs of a man and the wage which he receives. Wages are fixed wholly independent of social relations.

The American wage is anti-social. The present system of wage payment fails to stimulate workers to industry and thrift because it has not given them a reward in proportion to their exertions and ability. There is no relation between product and wages. Rather wages are fixed by competition and monopoly. The present wage scale fails completely to provide a return in proportion to social needs. The simplest requirements of social progress call for ambition, for justice, and for the provision of health necessities. The present American wage scale offends even these primitive social standards.

VI. The Gross Inadequacy of the American Wage

The American wage is grossly inadequate. Examined from any point of view, it fails to provide a sufficient return to the wage-earner who is carrying the burden of a young family.

American industry pays to the overwhelming majority of wage-earners, a wage of less than $1,000 a year. Even where no allowance is made for unemployment, the wage rates of three-quarters of the men fall below $750 a year. Perhaps three wage-earners in each hundred are paid over $25 per week (a yearly rate of $1,300). Compared with the sums which are met with in the business world, the wage of the workers is small.

The wage rates paid by industry, placed side by side with the cost of family health and decency, reveal an appalling situation. In great numbers of cases, the wages paid by industry to its adult male workers are insufficient to provide for the health and decency of a moderate-sized family.

American wages, as a business proposition, are even less adequate than they are for the provision of health and decency. The ordinary principles of sound American business practice are all violated in the financing of the worker's family.

There are certain well-recognized principles of social expediency: that industry shall pay a wage that will maintain the efficiency of its workers; that wages must prevent poverty and dependence; and that families must be able to live as self-respecting units in the community. These principles underlie the sane conduct of society. Each of them is violated by the present American wage scale.

American wages are inadequate, grossly inadequate, when viewed from any point of vantage afforded by the available social facts. In a small percentage of the cases, and for individual families, this is not true. Speaking generally, however, and in terms of family living, the present American wage scale is pathetically, grotesquely, viciously inadequate.

INDUSTRIAL OUTPUT AND SOCIAL EFFICIENCY

By Charles Ervin Reitzel,

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Industrial efficiency has been defined as a maximum of output with a minimum of outlay and effort. To this standard the progressive employer has been so fully converted during the last decade that back-sliding into slipshod methods of production need little be feared. Industry has learned well its scientific lesson on reducing costs. Meanwhile, however, with a zeal almost religious, labor has organized and become united so as to bring into its activities stringent demands for better working conditions and higher wages. Herein, then, we see a basis of conflict. The employer in his efforts to obtain, through so-called efficiency, a lower cost per unit of production, must of necessity condemn, and combat vigorously, programs which make for higher returns to employees. In contrast, labor in order to realize its goal, must push upwards its sources of economic welfare—higher wages and steadier work. This "cutting-down" process on one side opposed to this "pushing-up" process on the other must in the final outcome lead not to efficiency but to inefficiency, not to a maximum of output but to a minimum of output. Conflict results in a curtailing not a creating of product.

But more important! The enlightened laborer is beginning to see, and see clearly, that as a member of an economic class it is to his direct advantage to handicap production. Why should he hurry through a job only to find himself jobless? When a group of workers in California a month ago saw that, with the tin binding straps cut, it required twenty times the amount of work to unload shingles than would otherwise have been necessary, behold, by some unknown mysterious power the binding straps were cut. It meant more work and more work was what they wanted. The bricklayers from their unionist standpoint are justified when they agree to lay eight hundred bricks per day in lieu of a possible two thousand. Such regulations are intended to give steady employment.

There is this conscious aversion on the part of labor to unemployment in all lines of industry. In the 1912 investigation into

the irregularity of employment in the steel industry, the workers objected more strongly to enforced idleness than to any other evil. Quoting from the report:

> There was no complaint so frequently made or so strongly expressed as that regarding unemployment. There were many points on which the workmen did not agree; many complained of low wages, others felt they were being paid at a fair rate; but in all parts of the country in all occupations practically all the workmen considered questions affecting hours of labor and rates of wages less important than the constant recurring periods of unemployment, and the uncertainty which attended work at all times.[1]

Such views are to be expected. It is most difficult for a workingman to associate the idea of increased output with the idea of personal benefit; but the connection is close between retarded work and continuous employment. Let us be honest and admit that the worker from his point of view is right. Work first! The amount of output is of secondary consideration.

Capital likewise is guilty of the same malefficiency. But again we must see justifications. Why grind out product only to find a lowering of prices? After a certain point has been reached, an increase in the volume of output is bound to lessen its unit value. In 1905–6 it will be recalled that the cotton acreage had fallen off 3,900,000 acres as compared with the previous year. This result has been directly attributed to the actions of the Southern Cotton Association and the Farmers Union, who were determined to raise the price to fifteen cents.[2] Like curtailments of tobacco, lumber, vegetables and fruit, in fact, in all lines of production are matters of common knowledge and experience. With capitalistic concentration comes a corresponding increase of price advantage through the checking of output.

To those interested in social welfare, both this industrial class conflict and this willful limitation of output by both labor and capital, are of vital importance. But of still greater import is the idle capacity becoming more and more tied up on account of such situations. Consider the result. As more and more capital and labor become stagnated the higher must be the costs to the consumer and the worse the spirit of unrest in our social order. Carried to its

[1] United States Report—*Conditions of Employment in the Iron and Steel Industry*, Vol, 111, p. 205.

[2] *Report of Commissioner of Corporations on Cotton Exchanges*, Part V, p. 342.

natural conclusion we see that it must lead to a complete stagnation in our industrial system. As labor becomes further awakened and establishes a consciousness of its own interests, just so must come defying demands which will hinder and curtail the productive processes. And with the monopolistic growth of capital the more will be its tendency to juggle output so as to enhance prices. Viewing it as the consuming public must, the whole system is becoming cumbersome, chaotic and unworkable. There is no greater condemnation of modern industry than the travesty of an able competent *idle* worker standing beside a huge magnificent *idle* plant. Here is social inefficiency raised to the n^{th} power. We shall have made great strides in social progress when we admit that such an industrial situation is essentially anarchistic.

A complete measurement of this enormous waste due to idle capacity is well nigh impossible. However, sufficient data are available to show in a measure the ratio between the full capacity of industry and its actual operation. If we here can but obtain an intelligent interest in the problem of this wasted capacity, then we have gone far in seeing the importance of obtaining more complete data on the question.

An illuminating New Jersey report[3] for 1912 gives us a fact portrayal of at least one state. Here is shown the relation between "full capacity" and "actual operation" not only for all industry but for each specific kind of manufacturing. The exact "purpose of this investigation," to quote from the report, "is to show how nearly the actual operation of industry during the year approached its full productive capacity. The 'proportion of business done,' as reported by the establishments considered, represents their actual output of goods for the year, compared with what it might be if all the existing facilities of the plant had been brought into use." What do the facts show?

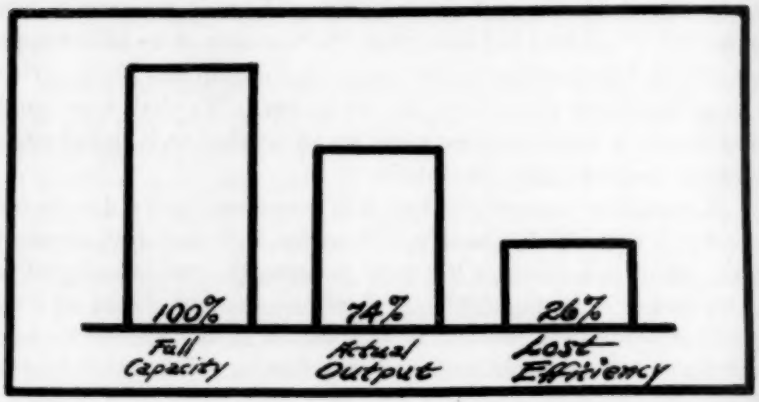
During the year, 2,556 establishments with invested capital amounting to $849,000,000 and a labor supply of 323,400 employees, created $1,050,000,000 worth of goods. Deducting Sundays and holidays, the report considered 306 working days as a "full capacity" year. On this basis the aggregate proportion of business done

[3] *The thirty-sixth Annual Report of The Bureau of Statistics of Labor and Industry, 1913.*

is shown to be 74 per cent; or 26 per cent below the full productive capacity. In terms of output then, we have:

Possible output	$1,413,000,000
Actual output	1,050,000,000
Lost output	$ 363,000,000

The same represented by graph would appear as follows:



To the capitalist this 26 per cent "lost efficiency" looms up as a greater possible return on money invested—shall we say, an additional two or three per cent. To the wage-earner it is a life and death proposition. Without any change whatsoever in the ratio of economic distribution, the additional returns that would result to the worker if the industries were running "full capacity" are sufficient to pull the average wage-earner quite a distance away from the pangs of poverty.

Considering the wage-earner in two of the largest industries of the state—the machine industry and the silk industry—which employ 21,194 and 15,775 workers, respectively, we can show clearly his "full time" wage in contrast with his "actual wage." In these industries the operation was in both cases slightly over 70 per cent of their "full capacity." The average wage actually received in the machine industry for the year was $684; in the silk industry, $509. The possible "full time" wages were $977 for the machine worker and $726 for the silk employee. Charted as follows we have:

Massachusetts also gives us some enlightening material in its twenty-sixth annual report.[4] But the results are so similar to those of New Jersey that a portrayal would but tend to repetition.

A very thorough investigation which brings out our problem in another light is found in the Iron and Steel Industry Report on Employment.[5] The investigation took place in 1910, when the production of iron and steel was greater than any preceding year. However, "constant complaints were heard from all classes of employees, skilled and unskilled, native and foreign, about the irregularity and terrible uncertainty that accompanied steel production.[6] It appears the policy of the steel industry," continues the report, "is to operate to its fullest capacity during active demand, then during a decline in the market, shut down completely and wait an accumulation of orders or the development of better prices"[7]—a vicious policy from the standpoint of the wage-earners. As a

[4] *Twenty-sixth Annual Report on the Statistics of Manufactures, Massachusetts, 1911.*

[5] *Report on the Conditions of Employment in the Iron and Steel Industry in the United States*, Vol. III, Ch. VII, 1910.

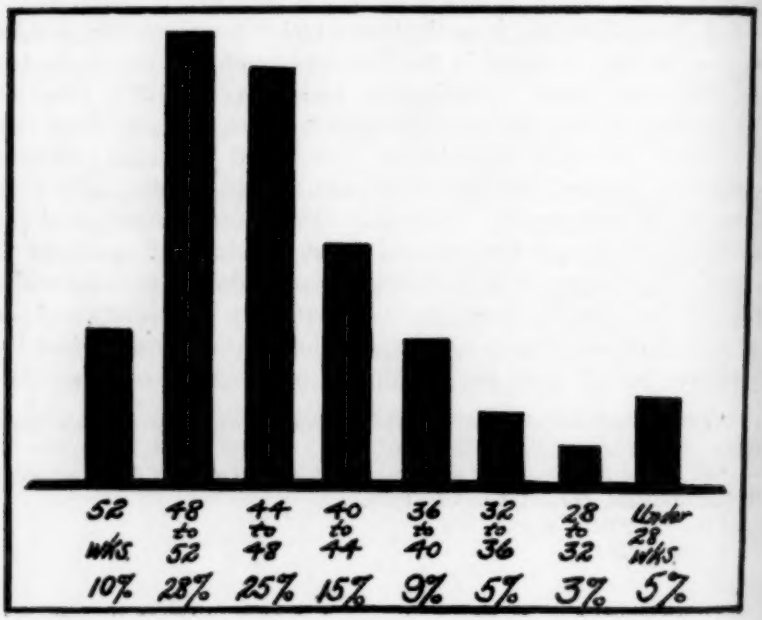
[6] *Ibid*, p. 206.

[7] *Ibid*, p. 207.

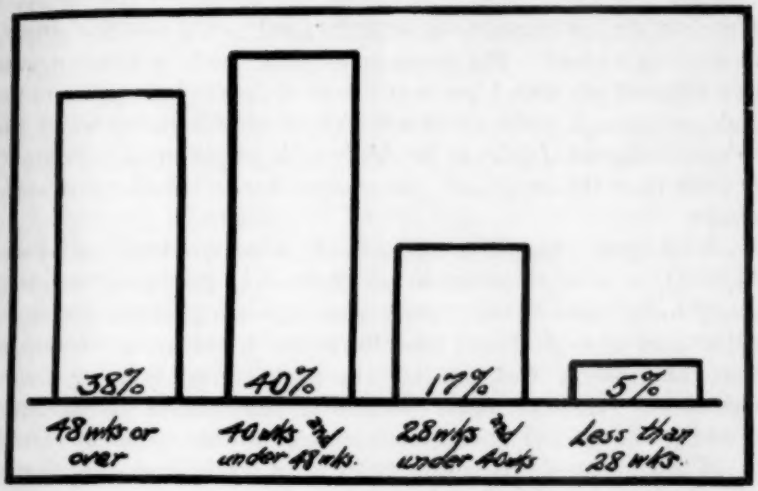
basis of study over one hundred plants with 90,757 employees were covered—the report taking into consideration the five principal departments of steel production,—namely, blast furnaces, open hearths, bessemers, hand and mechanical rolling mills. A time unit of operation for each department was established. Then the ratio between the number of units of "actual operation" and the number of units of "full capacity" were compiled. Totaling the results of the five departments, we have:

Number of weeks in operation	No. and percentage of employees in each period	
	Number	Per cent
Under 28 weeks	4,906	5.4
28 to 32 weeks	2,287	2.5
32 to 36 weeks	4,168	4.5
36 to 40 weeks	8,559	9.4
40 to 44 weeks	13,648	15.3
44 to 48 weeks	23,015	25.4
48 to 52 weeks	25,262	27.7
52 weeks	8,912	9.8
Totals	90,757	100

Diagrammed according to the percentages of employees working, it appears as follows:



Or, when placed on a basis of plant operation, we have:



Such statistics, however, do not make the appeal that personal experience does. As a boy reared in a steel-town under the black shadows and the dirty smoke of blast furnaces, I remember well the shattered hopes, the fears and the disappointments of the thousands of steel workers caused by irregular employment. What a gloom came over the inhabitants when the report went abroad, "The rail mill is to be shut down," or "The blast furnaces are to be 'out' for a year." This meant less "smoke and dirt," but it also meant less income to the workers who were ever ignorant as to the time such misfortune would fall upon them. Is it any wonder that they are becoming more dissatisfied, restless and disturbing? I should be greatly surprised, taking all things into consideration, if they acted otherwise.

It is natural to expect that blame of some sort will be placed upon capital and labor for this idle capacity and unemployment. But as the situation develops we are placing less blame on either side and are beginning to see that the evil is inherent in a system of industry run primarily for profit. And seeing this, we must look for changes in the system and methods of industry rather than to bitter criticisms of capital and labor, if we wish industrial progress. No! It will not do to attribute the great loss of output to strikes, lockouts

or other troublesome tendencies. These factors focus national attention and often center cruel blame, but the actual loss sustained by strikes, etc., in comparison with the total loss of possible output, is exceedingly small. For instance, in 1912, the New Jersey reports show a loss of less than 1 per cent due to strikes in proportion to the total loss through non-operation.[8] A system of industry which has the establishment of price as its chief aim is bound to curtail output, far more than the occasional disturbance due to troublesome wage-earners.

What great changes must be made, what constructive policies advanced, in order to secure social efficiency! Two great trends in society today show developments which are bringing about a desire on the part of capital and labor to create a maximum of output. First, the growing tendency that the worker must be more than a wage-earner—that he must become a part sharer in industry. Secondly, the greater government control and government regulation of the means of production which must result in an operation of industry for use rather than for profit. At present, to the workingman the distance is great between increased output and a corresponding increase in wages. He can see no connection between the two—and rightly so, for experience has taught him otherwise. But just so soon as he becomes a direct sharer in the output as a part ownerof the business, it changes everything. His interests become coupled with the business, not bulwarked against it. The padlocks of antagonism are broken. So also with capital; the more industry is looked upon as a social institution operated for the needs of the people, the more will intentional checks and limitations be condemned and prohibited. Employers, employees and the public are entering an era of social consciousness—an era characterized by justice for all. Social efficiency demands it!

[8] *Thirty-sixth Annual Report of Labor and Industries of New Jersey 1913*, p. 310.

THE THEORIES ADVANCED IN EXPLANATION OF ECONOMIC CRISES

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A definition of an economic "crisis" is, like most other definitions, very difficult to construct. By way of introduction we shall quote a few chosen somewhat at random. Adolph Wagner, the German economist, expresses his idea by saying: "Crises imply . . . . the overwhelming and simultaneous occurrence of inability on the part of independent entrepreneurs to pay their debts." This is similar to the statement of John Stuart Mill: "There is said to be a commercial crisis when a great number of merchants and traders at once either have, or apprehend that they shall have, a difficulty in meeting their engagements." Professor E. D. Jones says: "A crisis is the sudden application of a critical conservatism to business transactions, leading to such a demand for liquidation as to cause a widespread inability among business men to meet their obligations." Senator Theodore E. Burton states: "The word crisis, if employed with entire accuracy, describes a period of acute disturbance in the business world, the prevailing features of which are the breakdown of credit and prices and the destruction of confidence. It has especially to do with the relations of debtor and creditor."

None of these definitions gives so clear an idea as does a brief description. Probably no one has ever pictured the crisis and the associated events more effectively than did Frederick Engels in his little volume *Socialism: Utopian and Scientific.*

> As a matter of fact, since 1825, when the first general crisis broke out, the whole industrial and commercial world, production and exchange among all civilized peoples and their more or less barbaric hangers-on, are thrown out of joint about once every ten years. Commerce is at a standstill, the markets are glutted, products accumulate, as multitudinous as they are unsaleable, hard cash disappears, credit vanishes, factories are closed, the mass of the workers are in want of the means of subsistence, because they have produced too much of the means of subsistence; bankruptcy follows upon bankruptcy, execution upon execution. The stagnation lasts for years; productive forces and products are wasted and destroyed wholesale, until the accumulated mass of commodities finally

filter off, more or less depreciated in value, until production and exchange gradually begin to move again. Little by little the pace quickens. It becomes a trot. The industrial trot breaks into a canter, the canter in turn grows into the headlong gallop of a perfect steeplechase of industry, commercial credit, and speculation, which finally, after breakneck leaps, ends where it began—in the ditch of a crisis. And so over and over again.

Perhaps even this vivid word picture will be less impressive to some than a few facts as to the serious effects of the crisis and the depression that follows it. Professor Wesley C. Mitchell in his recent volume entitled *Business Cycles* has recorded the significant features of the crisis of 1907 in England and the United States and the following points have been taken from his account. By the middle of the summer evidences of difficulty had begun to appear in England. British railway stocks had fallen off in price; the shipbuilding yards had few new contracts; costs of production had become so great that many manufacturers were refusing to take new business at the ruling quotations; the building trades were dull; the ratio of net to gross railway receipts declined; commodity prices began to drop; bank clearings fell off; imports gained less rapidly; and the percentage of trade union members unemployed rose from 2.8 per cent at the end of April to 3.6 per cent by the close of August. These difficulties came to a climax in the latter half of the year, being intensified by the crash in the United States. The bank rate of the bank of England rose from 4½ to 7 per cent, where it remained for nearly two months. During this period the market rate averaged from 5½ to 6½ per cent. Imports and exports showed smaller and smaller increases over the preceding year and in the early months of 1908 began to decline; clearings fell off sharply and trade union unemployment increased to nearly 10 per cent during the latter months of 1908.

In the United States where the crisis degenerated into a panic, conditions were much worse. In advance of the actual outbreak of the panic there was for months evidence of a tension in the investment market. Copper especially fell in price and was followed by copper stocks. This precipitated difficulty among a group of banks that were more or less closely identified with the copper interests. Runs were started and a number of banks were forced to suspend payments. A scramble for cash followed, spreading from New York throughout the United States and accompanied by very serious

consequences. Among the worst of the effects were a premium on currency which rose at one time as high as 4 per cent; the necessity of introducing numerous substitutes for cash; a demoralization of the domestic and foreign exchange markets that caused heavy losses both to bankers and to business men while the amount and the prices of securities dealt in on the stock exchanges seriously declined. During November and December currency was at a premium of from ¼ to 4 per cent. Call loan rates were erratic, going as high as 125 per cent in the latter part of October and fluctuating between 5 and 25 per cent as late as during the latter half of December. During November there was a decline in the amount of time loans and the quoted rates ranged from 6 to 7 per cent in October, 12 to 16 per cent in November and 8 to 12 per cent in December. Worse still was the stoppage of business by those enterprises that could not pay the high rates and could make no special arrangements to secure lower ones. Business failures in the United States which had been as low as 161 in the last week of 1906 were 300 for the week ending December 19, 1907, and 435 for the week ending January 9, 1908. In the second quarter of 1907 there were 2,471 and for the first quarter of 1908 there were 4,909.

These derangements of business would seem to be of interest primarily to the bankers and brokers or to the large borrowers—to the capitalist class. The counterpart of the picture is to be found in the effect of the crisis upon the man of small means and upon the poor. Inability to borrow may mean considerable inconvenience or even financial ruin for the man of large affairs but it does not usually mean actual suffering. Nevertheless his failure to secure funds and the necessity of selling his securities or commodities at a low price may force him to close his factory, to delay extensions or at least to curtail operations. He receives fewer orders for goods and as a result buys smaller amounts of raw materials and lessens his own output.

This means reductions of wages and discharge of workmen. Some writers have urged that the workingman receives a fixed wage and does not assume industrial risks which are borne by the capitalist or entrepreneur. Such a statement is fallacious. The employee participates in the risks of modern industry and suffers from a business derangement far more severely than his employer. The capitalist secures less profits but with his accumulated savings ordi-

narily endures no real privation while large numbers of the workers with little or no savings face actual hunger or starvation. Demands upon charitable organizations increase, bread lines grow longer and suffering becomes widespread and intense until the crisis and the ensuing depression are over.

This brief enumeration is sufficient to make clear the seriousness of crises and to explain why so many attempts have been made to determine their causes and to devise methods for alleviating or preventing them. Few, if any, efforts at a logical explanation were made prior to the nineteenth century. The dislocations of business that occurred with more or less frequency in the centuries preceding brought with them less serious consequences and their effects were less widespread than has been true during the last one hundred years. The introduction of machinery, the development of a world market, a wage system, the complexity of modern finance and, in general, the close interdependence of all countries and individuals during and since the industrial revolution are the reasons for this.

Explanations of crises may be divided conveniently into two general groups. The first includes those which find that each disturbance is due to some special cause. Modern industry is viewed as in a state of stable equilibrium. This condition is "normal" and tends to continue, but numerous influences, which are for the most part unpredictable, are apt to disturb it and bring about an "abnormal" situation. Crises thus have little or nothing in common except their abnormality. They are pathological phenomena and each has its special, unpredictable cause. When the cause has been removed or when the industrial structure has become adjusted to its presence, disturbances disappear and a state of normality again exists.

If this is the correct explanation it is evident that there is no possible limit to the number of causes of crises. Any change in the relative importance of the almost countless forces that are always operating in our economic life or the appearance of any new influence may completely upset the delicate adjustments of our industrial machinery and precipitate disaster.

Among economists the leading exponent of this theory is Wilhelm Roscher. Another writer, Max Wirth, enumerates as the list of causes that produce crises: "(1) harvest failures; (2) discovery of new deposits of coal, metals—particularly of the precious metals;

(3) inventions; (4) opening or closing of commercial routes and of markets; (5) war and revolutions; and (6) leading to depression of trade, the depreciation of the currency."[1]

An interesting collection of special causes of depressions is to be found in the first annual report of the United States commissioner of labor. These were elicited through inquiries by congressional committees and gathered by agents of the bureau of labor. Expansion of credit, contraction of currency, underconsumption, uneven production and others suggest the view that the causes of depressions persist or recur but still others very distinctly suggest the sporadic. Of the latter group there may be mentioned land grants to corporations, free passes, the repeal of the income tax, the faulty collection of revenue, and the introduction of Bessemer steel.

Two comments on this method of accounting for crises seem appropriate. First, it is to be observed that it overlooks or chooses to ignore a certain regularity in the appearance of crises—a regularity that may be significant and call for explanation. In the second place, such an interpretation is discouraging. If the causes are irregular, prediction of crises becomes difficult, if not entirely out of the question. If they cannot be foreseen, prevention is impossible and we have no recourse but to await their appearance and then merely do our best to alleviate their disastrous consequences.

To others, and in fact to most writers in recent years, there seems to be a distinct uniformity in the intervals between crises and in certain of the accompanying phenomena. This has led to the suggestion that there may perhaps be formulated a law of their periodicity. It is said that crises tend to recur and that prosperity, crisis, and depression succeed each other with such regularity as to warrant the use of the word "cycle."

Explanations of this second sort may be called cycle theories and may be divided into three classes. These classes are by no means mutually exclusive but represent differences of emphasis rather than entirely distinct opinions. First are those which find the explanation in the human mind. The ebb and flow of business is due to psychological causes. Second are the theories that find a regularity of recurrence in the operation of some of the forces of nature which determine the crop yield and thus affect values. Third and last in our classification are the theories that place their em-

[1] Quoted from *Economic Crises* by E. D. Jones, p. 23.

phasis upon the structure of our modern economic life. The description of a business cycle quoted above from the writings of Frederick Engels is an illustration of this type of theory.

We may refer to the first of these three classes of theories as psychological. One of the earliest writers to emphasize the importance of mental action was John Mills who declared (in 1867): "The subject of commercial fluctuations will acquire a new dignity if it be found striking its roots far below the level of its physical particulars, and proving itself cognate with the sciences of the mind." Yves Guyot, Horace White and others have in varying degrees stressed the importance of these psychical factors.

This point of view has been carefully analyzed by Professor Jones, who does not, however, stress it unduly in his discussion. The dominance of the impulse to secure wealth distorts recollection, modifying original impressions, repressing unpleasant experiences and removing the correctives that might otherwise control conduct. The optimistic become leaders and through undue concentration of interest and the consequent effect upon the emotions, errors of practice are promoted. This is the more certain to occur since belief tends to stimulate action and since the beliefs and actions of one individual or group are reflected and copied by others. Mistakes are, however, bound to occur. Erroneous beliefs are spread as well as correct ones. Errors rapidly accumulate, increasing in their intensity and consequent effects. Sympathy, as an influence distinct from intellectual conviction, encourages a rapid spread of optimism. Being unintelligent "it makes for the support of opinions dangerous to the stability of industry. An undue concentration of interest resulting in intense emotion is always prejudicial to sound reasoning."

This excessive optimism leads to engagements and contracts whose fulfillment is beyond the power of their makers. A realization of this appears here and there, producing uncertainty. Actual inability to keep agreements and to make payments when due soon occurs and the uncertainty spreads. Doubt and hesitation extend their influence in the same manner and with the same rapidity as did optimism in the earlier phase of the cycle. Economies become necessary and expenditures are curtailed, thus aggravating the difficulty. Even if an actual panic is avoided, discouragement and depression appear. Pessimism regarding the immediate future is

the dominant attitude of mind and disappears slowly, perhaps not for some months or years.

The second class of cycle theories find the explanation of crises in certain periodical changes in the operation of natural forces. This point of view may be made clear by summarizing the conclusions of two writers. Writing in 1878, W. Stanley Jevons, the well known English economist, referred to the theory of John Mills (which we have already mentioned) by saying: "I can see no reason why the human mind, in its own spontaneous action, should select a period of just 10.44 years to vary in. Surely we must go beyond the mind to its industrial environment." Professor Jevons investigated carefully the crises during the eighteenth and nineteenth centuries and concluded that there had been an exact regularity in their appearance. He also observed that the latest available study of the sun-spot period, that of Mr. J. A. Broun, showed an interval of 10.45 years between them. This close correspondence led to the suggestion of a connection between the two phenomena and the famous "sun-spot and harvest" theory was the result. Elaborate investigations led to the conviction that a greater number of sun-spots at any given time is an evidence of greater solar activity and consequently a greater radiation of heat, the effect of which will be felt upon the earth. When the spots are fewer in number, less heat is radiated and the weather will be cold, cloudy and damp, resulting in poor crops and high prices. Alternation of these conditions produces regular fluctuations in commercial activities.

A perusal of the essays of Professor Jevons indicates the wide extent of his research but a question quickly arises when one encounters his statement: "I am free to confess that in this search I have been thoroughly biased in favor of a theory, and that the evidence which I have so far found would have no weight, if standing by itself." Aside from this, it may be pointed out that there are several difficulties with it, at least as stated by its author. Students of crises by no means agree that there is always an interval of 10.44 years between crises and there is much difference of opinion among scientists regarding sun-spots and their influence on climates and crops. On this President A. T. Hadley has written: "The Civil War in the United States quite broke up the regular ten-year round of crises, and, as it did not have any appreciable effect on

the sun-spots, it may be said to have broken up the theory also."

The second of the writers in this class whose views we shall summarize is Professor Henry L. Moore whose volume entitled *Economic Cycles: Their Law and Cause* has recently appeared. To Professor Moore the fundamental problem of economic dynamics is to formulate the law governing the "ebb and flow of economic life" which is "the most general and characteristic phenomenon of a changing society." The motto of the department of agriculture of the United States—"Agriculture is the foundation of manufacture and commerce"—is significant and that the farmer is at the mercy of the weather is proverbial. There may be such a close connection between the weather, the crops and crises that we shall be able to find in weather changes the cause of crises.

An examination of all the numerous factors involved in the problem would be a stupendous task and Professor Moore limits himself to a consideration of a selected few. "The variation in the quantity of the rainfall is one of the weather changes known to have a marked effect upon the yield of the crops." Hence the inquiry is directed to an examination of the "appropriate data with reference to three things: (1) the periodicity of rainfall; (2) the effect of rainfall on the crops; (3) the relation of the yield of the crops to economic cycles." The study is a statistical one conducted with the greatest of care to avoid error and the conclusions are deserving of the most careful consideration. All generalizations are made carefully and used cautiously with a full realization that a limited area—the upper Mississippi Valley—has been used and a period of only seventy-two years surveyed. Of the numerous climatic factors only rainfall has been examined.

Remembering that these limitations are fully realized we may state the conclusions in Professor Moore's own words: "The fundamental, persistent cause of the cycles in the yield of the crops is the cyclical movement in the weather conditions represented by the rhythmically changing amount of rainfall; the cyclical movement in the yield of the crops is the fundamental, persistent cause of economic cycles." This should be supplemented with a statement of the law that has been sought and which may be formulated thus:

> The weather conditions represented by the rainfall in the central part of the United States, and probably in other continental areas, pass through cycles of

approximately thirty-three years and eight years in duration, causing like cycles in the yield per acre of the crops; these cycles of crops constitute the natural, material current which drags upon its surface the lagging, rhythmically changing values and prices with which the economist is more immediately concerned.

Without discussing any other theories of this second class we may now turn our attention to the third. In this the writers are numerous and we shall be compelled to limit ourselves to a few and consider them typical. Their theories are characterized by an emphasis on the interdependence of modern economic life and the complexity of business organization. The significance of human psychology is not denied but acknowledged more or less specifically. Under modern conditions, however, these mental traits have a broad opportunity to exercise their influence and the disaster that results is widespread. Each individual is dependent upon others and in a similar manner the welfare of each community and each nation is dependent upon that of every other. Difficulties arising from any cause spread rapidly in all directions. The specific occurrence that precipitates the disaster may be different in each case but the underlying cause is the unstable equilibrium of our economic life.

Since we must limit ourselves to a discussion of only a few of these theories we shall choose four, representing somewhat widely separated groups: John Stuart Mill, chosen because of his position of leadership among the classical economists; the socialist theory as a radical protest against classicism; the views of George H. Hull, who writes as a business man; and the explanations presented by a modern economist, Professor Wesley C. Mitchell, whose comprehensive study entitled *Business Cycles* is one of the latest important contributions to our knowledge of the topic.

Malthus, Chalmers and Sismondi had contended that crises were due to a general oversupply or glut of goods. To this Mill objected, alleging that such a condition is impossible. When it is said that supply may outrun demand either one of two elements may be in the mind of the speaker—the desire to possess or the means of purchase. The latter supposition is necessarily incorrect.

Each person's means of paying for the productions of other people consists of those which he himself possesses. All sellers are inevitably, and by the meaning of the word, buyers. Could we suddenly double the productive powers of

the country, we should double the supply of commodities in every market; but we should, by the same stroke, double the purchasing power.

There is thus always present the means of purchase but it may be that those who have the means of purchase do not desire to secure other goods or perhaps desire to secure goods of a kind not available. Or it may be that those who have a very intense desire to purchase do not possess any goods at all. "Those who have the means, may not have the wants, and those who have the wants may be without the means." In the aggregate there has not been an over-production of goods but merely a misdirected or ill assorted production.

General over-production of goods is thus impossible. There may be, however, an under-supply of money. In times of crisis, the annihilation of credit may cause everybody to desire money, hesitate to part with it or be willing to procure it at almost any sacrifice. The remedy is not a curtailment of production and a consequent diminution in the supply of goods but a restoration of confidence. There may be a partial glut of goods but no general over-supply. These partial gluts may temporarily become general because of a collapse of credit. Fearing an inability to meet their engagements, merchants and traders curtail their accommodations to others. The crisis is due to the contraction of credit which may have been precipitated by excessive speculation, by the withdrawal of capital from one market for investment in another, or by some other influence.

Marxian socialism has found in the crisis the most acute evidence of the inherent contradictions in our capitalistic order. Everywhere in our industrial life there are antagonisms. All history is a struggle between opposing classes, master contending against slave, patrician against plebeian, capitalist against laborer. There is a contradiction between socialized production and individual appropriation, between socialized production in the workshop and anarchistic production in society generally.

Reverting to the views of Mill's predecessors, Marx and Engels find that over-production is the cause of crises. Thus in the *Communist Manifesto* we find: "In these crises there breaks out an epidemic that in all earlier epochs would have seemed an absurdity —the epidemic of over-production." Also in the description of a crisis by Engels, as we have given it above, are the words, "The mass of the workers are in want of the means of subsistence, because they

have produced too much of the means of subsistence,"—another contradiction in our social order.

In the production of commodities the workers work socially for social objects. They coöperate with each other and with the capitalist to produce for social consumption. This product should be a social product but is appropriated by an individual, the capitalist employer, for his own advantage—the realization of his profits. The value of these goods is the amount of labor time socially necessary for their production but the capitalist is able through his advantageous position to secure the services of labor for much less and to appropriate the difference. Labor has the power and the sole power to create value but receives in return much less than it creates.

The demand for goods, however, is the purchasing power of the laborers or producers. Since there is given to them continually an amount less than they produce there is bound to be an ever increasing difference between the goods produced and the purchasing power of labor, or the demand for goods. This is increased by the fact that production is not socially directed. Each capitalist in the competitive régime seeks his own profit and produces largely without reference to the plans of others. Production in general is thus undirected, anarchistic. Commodities rapidly accumulate in excess of any possible demand for them. Production must then be curtailed with resulting loss to capital and unemployment and distress to labor. As a result "the times of greatest distress for the mass of the people now are the times when there is a complete glut of the commodities which they need and which they make."

George H. Hull is an American business man who has become interested in crises through his daily experience with industrial problems and who has published his conclusions in a volume entitled *Industrial Depressions*. Mr. Hull takes the view that crises, or rather depressions, are an old problem but that the modern industrial depression is a new malady. Some modern depressions are due to causes that have been generally recognized such as "war, pestilence, famine, bad legislation, political upheavals, and other great calamities," but in recent years a situation has developed which has not hitherto been correctly diagnosed and understood. This particular class of depressions, and not all classes, are then analyzed.

The demand for certain classes of goods is incapable of much fluctuation because they are necessities. Fluctuations do occur in agriculture, commerce and finance but within quite narrow limits. Also construction work is quite constantly demanded to an amount necessary for maintenance, replacements and such extensions as are made necessary by the growth of population. There is, however, a certain amount of construction that may be called "extra" or "optional" or "investment construction." Investment construction is undertaken only when the investor sees in it the prospect of liberal profit. In a time of low prices far-seeing investors enter into contracts for a large amount of construction work. Their lead is followed by others and the resulting demand for construction materials creates a boom in the industries immediately affected. Of these, iron and steel are the most important.

In a short time contractors discover that they are obligated in excess of their capacity. Labor and materials cannot be secured on terms that make possible the fulfillment of agreements on contract time and as rapidly as this is realized wages and prices rise. Again the far-seeing ones take the lead, this time by ceasing to enter into fresh agreements. Plans for extension are deferred and those lines of business that furnish construction materials such as iron, steel, cement and lumber, face a falling off in the demand for their products. Laborers on construction enterprises also face shorter hours, reduction in wages or dismissal. A large volume of contracts brought on the period of prosperity and now the reduction in their volume brings depression. Prices and wages fall until the possibility of large profits is again tempting and a new cycle is started. We may quote Mr. Hull as follows for a brief summary of his view:

> We recognize the due influence of everything which tends to increase or decrease the volume of the industries. We claim, however, that after a country has become chiefly manufacturing, no combination of favorable influences has been strong enough to develop a boom, except on low prices of construction, and that after abnormally high prices develop, no combination of favorable influences has been strong enough to keep the boom going beyond the time necessary to complete the volume of extra construction made up of old, low-priced contracts.

The remedy needed is described thus:

> The remedy we suggest is the inauguration by the national government of a system for collecting and publishing monthly all pertinent information in relation to the existing volume of construction under contract for future months, and all

pertinent information in relation to the capacity of the country to produce construction materials to meet the total demand thus indicated.

We may now turn to the fourth illustration of this particular class of theories. Professor Wesley C. Mitchell's work called *Business Cycles* is the most voluminous and painstaking analysis that has appeared for some time. Professor Mitchell finds that crises have no regular period of recurrence, that business cycles do not always pass without interruption through the same round of prosperity, crisis and depression, that there are many variations in intensity and that no two periods show exactly the same combinations of elements. There are diversities due to influences arising from other than business sources, among which are the weather, earthquakes, war, epidemics and tariff changes.

A correct explanation of the persistent, recurring causes, however, must rest upon a recognition of the fact that "the industrial process of making and the commercial process of distributing goods are thoroughly subordinated to the business process of making money." Business activity passes through cycles. Starting with the period of depression we find a relatively low level of prices, reductions in business costs, narrow margins of profits, moderate stocks of goods, cautious buying and business conservatism. Accumulated stocks of goods, however, are finally exhausted. Demand gradually revives encouraged by the continued growth of population, new tastes among consumers and new methods among producers. Most important of all there is a revival in the investment demand for industrial equipment. Low rates of interest encourage borrowing, contracts may be let to advantage and capitalists become less timid as memories of the crisis grow less distinct.

Expansion in certain active trades or in a certain section or sections creates a demand for materials that must be purchased "from other enterprises, the latter from others, and so on without assignable limits." Family incomes expand, consumers' demands increase and "soon or late this expansion of orders reaches back to the enterprises from which the impetus to greater activity was first received, and then this whole complicated series of reactions begins afresh at a higher pitch of intensity." Optimism spreads and the expansion is still further encouraged.

Those enterprises whose order books are well filled stand out for higher prices on new orders, even in highly competitive lines,

since beyond a certain point more business can be handled only after heavy investments in new equipment. Some prices however rise more rapidly than others, retail prices lagging behind wholesale, consumers' goods behind producers' goods, etc. Wages rise less than wholesale prices and stocks more rapidly than commodities. The growing physical volume of sales combined with these variations in price fluctuation result in larger profits and in the presence of growing business optimism there is a marked expansion of investments. Prosperity becomes intense.

But this prosperity breeds a crisis. Business costs increase because of the heavy expense of adding to equipment or of bringing antiquated properties back into use. Wage payments increase in standard rate and because of the higher cost of overtime. Overtime brings weariness and labor efficiency declines. Numerous small wastes are multiplied in the hurry to bill orders. There is also an increasing tension in the investment and money markets which adds to costs and lowers profits because of the higher interest rate and because many enterprises must be abandoned.

To offset these encroachments of costs upon profits, selling prices must, if possible, be raised still further. In certain lines of business, however, this cannot easily be done. Demand for new goods, especially at higher prices, cannot be stimulated sufficiently to prevent a loss. Sharp contrasts thus develop. A growing number of enterprises face declining profits. Worse than the necessity of passing dividends is the appearance of doubt concerning outstanding credits. Business credit is based primarily upon the capitalized value of present and prospective profits. Cautious creditors refuse renewals and press for settlement of accounts.

Desire to secure profits soon becomes subordinated to the necessity of maintaining solvency. Financial resources are conserved. Outstanding liabilities are provided for and efforts to push sales are checked. The volume of orders lessens, expansion gives way to contraction, and discount rates rise. The crisis is on and may or may not degenerate into a panic. A period of depression follows and another business cycle is soon under way.

This paper aims merely to present a few of the leading theories of crises, those reviewed being the ones that appear to the writer most typical and most valid. In recent years many new explanations have been offered but a review of more of them is impracticable.

The reader who is interested will find a valuable summary of the most recent in Mitchell's *Business Cycles*. In conclusion we may merely observe that many theories are obviously presented to defend some of the other views of their advocates. The connection of the socialist theory with the socialistic idea of value is an obvious one. It may also be true that interest in some particular phase of study may cause the investigator to overlook the importance of other elements in the problem. Thus to Professor Moore climatic conditions seem of great importance, while Professor Mitchell relegates them to a very minor position. As time passes it will doubtless be possible to estimate the significance of each factor with more accuracy. When this is done a more satisfactory theory can be formulated and methods of prevention and alleviation employed to better advantage.

TAXATION OF LAND AS A REMEDY FOR UNEMPLOYMENT

By Bolton Hall,
New York City.

From its nature the taxation of land values must come gradually. Were its sudden introduction possible, it would make a serious disarrangement of existing conditions. In early days there was nothing to tax except personal property, for as long as the best land was still to be had free, land had little selling value. Consequently, the state taxed personal property as well as it could, and the difficulties of doing so were not so great as under the present complicated conditions.

Neither was there at that time any unemployment problem, the land being as open as it was to Adam or to Robinson Crusoe, so that no man could be out of work until at least all of his attainable desires were satisfied. This was true even in the early history of this country, when the Pilgrim fathers arrived. If anyone had complained that he was out of work, those grave Puritans would have laughed at him. They would have said, "clear those fields," "pile up those stones," "cut that timber," "plow this soil," "build a log house," "get some sea weed for manure," "catch fish" or "haul sand!" "Why there are thousands and thousands of things to be done. Do any of them, and we will give you not only food and shelter and clothing, but much more, in exchange for your work." In those days a proposal for the cultivation of vacant lots for the unemployed would have seemed funny; now it seems only sad that the land cannot be had for the purpose, while there are lands idle around every city, which could employ directly or indirectly every idle man in those cities, could its use be obtained.[1]

Accompanying the restriction of the use of the natural opportunities due to monopoly is of course lowered wages for some and fierce rivalry not only for the sale of goods but for jobs, a rivalry which has the curious effect of making a cut-throat competition

[1] New York city has 198,000 vacant lots, many of which contain many acres.

in the sale of higher cost goods. The merchant finds it just as hard to sell his goods in competition with those who wish to sell, as the laborer finds it hard to sell his work in competition with those who wish to work.

That this is the basis of "exploitation of labor" is recognized by the prophet of socialism; he says: "We have seen that the expropriation of the mass of the people from the soil forms the basis of the capitalist mode of production."[2]

Of course, where the primary seller practically controls the land, the primary source of supply (as is now true of oil, coal, iron, and many other things), or where he enjoys some governmental privilege that protects him from competition, such seller is enabled to sell at more than a fair profit—is enabled to collect tribute from all that use his particular thing.

But, except where protected by such advantages, keen competition pervades all industries. The man that engages to work for the merchant for "wages" or "salary" is compelled to compete with a certain number of others seeking employment, and is therefore forced to accept correspondingly lower wages. His employer must likewise compete with other merchants so numerous that there is not enough trade for all, and hence must not only pay his employees as little as possible, but get low "wages" (the businessman's profits are his "wages") for himself. The merchant, in turn, seeks to buy from the wholesaler as cheap as he can, and the wholesaler, knowing that competing houses are bidding for business, sells at a price not sufficient to net him a fair return on the investment, risk and labor involved. When the wholesaler goes to purchase from the manufacturer, the same struggle is enacted; and in producing the raw material for the manufacturer, the producer also finds it hard to make a living profit. Thus we find cutthroat competition that (notwithstanding occasional brief respites,

[2] *Capital*, by Karl Marx, Appleton & Co., 1889, page 793. The destruction of "petty industry" has been accomplished, Marx continues, by "the transformation of the individualized and scattered means of production into socially concentrated ones, of the pigmy property of the many into the huge property of the few, the expropriation of the people from the soil, from the means of subsistence, and from the means of labor; this fearful and painful expropriation of the mass of the people forms the prelude to the history of capital." The chapter is one of the concluding ones of the work, and is replete with statements of the same purport as the foregoing.

seeming in contrast like periods of "prosperity") grows more and more general, and rapidly spreads throughout every department of industrial life.

This overcrowding, at first felt only by day laborers, and by them only in limited localities, has now become world-wide, affecting alike laborers, mechanics, clerks, salaried men, business men, larger merchants, small capitalists, and (where no special privilege is held) larger capitalists—finally encroaching on the world of learning, forcing many a professional man to agonize over the difficulty of making a living when his thought should be centered upon his profession.

What does it mean—this overcrowding throughout the industrial world? This: the number of opportunities of employment does not equal the number of applicants for employment. Give ninety-five opportunities of employment to every hundred men, and we force upon ourselves the conditions of today: The worker, fearful lest another underbid him for his opportunity to "sell his labor" (or the product of his labor), is forced to accept less and less, as competition becomes keener and keener—thus he gets for his labor an ever-diminishing proportion of what that labor produces; and, worse than all else, feels himself grow less and less able to assert his manhood and independence.

But suppose we could in some way make more opportunities than there are men to use them: is it not evident that the tendency to lower wages, reduced salaries, and smaller profits would then be reversed and industrial conditions would become normal?

At first thought so far-reaching a change may seem impossible; but such a change can be accomplished.

Careful attention should be given to the difference between what is commonly called "competition" and true competition. True industrial competition may be defined as rivalry in production with equal opportunity—as in making bricks where all have equal access to the material from which bricks must be made. What is commonly called "competition" is a contest in which producers, denied equal access to natural resources, are fighting one another for opportunity to produce at all; the increasing keenness of the struggle being reflected in their willingness to accept lower wages, reduced salaries and smaller profits.

It is necessary to keep this distinction in mind to avoid the

common error that we can solve present industrial problems by "eliminating competition." Competition is natural and as impossible of elimination as is gravitation.

To insure the full and free operation of the law of competition, however, it is necessary to secure to everyone equal access to the field of labor. Men make things to satisfy their desires directly, or to exchange for things that others have made: whatever things men make that have exchange value are called "wealth." The whole universe excepting men and the things that men make is called "land"; these two, human exertion and the earth, are the sources of all production. The expenditure of human energy in producing wealth is called "labor." Hence the axiom that "from land does labor produce all wealth."

But men are tool-making animals; they not only make things for the direct satisfaction of their desires, but they make and exchange implements, the use of which enables them better and more easily to get what they want. These tools and implements, being products of labor and being exchangeable, are "wealth"; but being that part of wealth that is used in the production of other wealth they are also "capital."

While the first crude forms of wealth must have been made without the use of tools, that is, produced from land by labor without capital, it is hard to think of a labor product bought and sold today in the production of which labor has not employed capital. Therefore of modern production we can say that "from land does labor, using capital, produce all wealth."

Contrast the early days of our country's development, when capital and labor had free access to land, with the present time, when so much of the earnings of both must go, either directly or indirectly, to pay some form of rent: then capital and labor could divide between them the full product of their labors; while they today must be content with but a small part of that product, over the division of which they continually quarrel. While the worker's available income, (wages, salaries, profits on goods, etc.) has been shrinking, and while interest on capital has been declining, land value has been going up, up, up, until in some cities it has reached as high as $20,000,000 per acre. Now, when the employer and his employee must between them meet these ever-increasing demands of landowners, what wonder that little is left of their earnings to

divide between themselves! And the landowners that absorb the lion's share of the product do nothing as landowners except to grant to capital and to labor permission to use land.

And not only are capital and labor deprived directly of their earnings through the exaction of increasing ground rents: they suffer an indirect, though usually far greater, loss through the general overcrowding of all trades and professions, which restricts the purchasing power of the consuming public, and thus limits the markets that every producer of wealth must share with competitors in selling his product. For a restricted market means smaller profits for the employer and usually the absolute necessity on his part to pay reduced salaries and lower wages to his employees. When coal seams, iron mines, oil fields, dock facilities, agricultural lands, city lots and all other parts of the earth that might afford scope for work are either held out of use, merely partly used, or opened only at speculative or extortionate prices, of course labor must be unemployed. Idle lands which are in demand imply idle hands which cannot be in demand. For clearly no one would pay for land which he had no prospect of finding hands to work. If people are willing to pay a million dollars for a building site, it means that enterprise is greatly in need of opportunity to employ labor or will be greatly in need of opportunity in order to supply a social want for a building. From deprivation of this opportunity both the laborer and the capitalist that would erect and use the building suffer alike.

Failure to recognize that capital and labor suffer together, and that their interests are identical, springs from the common thought-habit of confusing capital and monopoly. We see a few men acquiring great fortunes, and are apt to class them as "capitalists"; on investigation, however, we usually find that their great wealth-acquiring power lies not in the exercise of marvelous wealth-producing energies, not in the possession of superior capital (capital today goes begging for favorable opportunity of investment), but in the possession of some franchise, which conveys the power of land ownership—the power to appropriate, unearned, the wealth produced by others. The power of the so-called coal trust, for instance, resides, not in its ability to produce much or superior coal and thus to earn big profits corresponding to the service rendered to coal consumers, but in its power to hold out

from production unused coal lands, and thus to force the public to buy its products at inflated prices.

In view of the real facts, how absurd and yet how natural is the present strife between capital and labor. The ancient rhyme says:

When the cobbler wants clothes,
  And the tailor wants boots,
They exchange work for work
  And both parties it suits;
When the landlord wants clothes,
  He just holds out his hand
And exchanges permission
  To live on the land.

Capital and labor clash because both fail to recognize that they are robbed alike by their common enemy, land monopoly, which sufficient taxation of land value will manifestly destroy.

That the present mode of taxation has persisted so long is mainly due to the thoughtlessly accepted dictum that "the payment of taxes should be according to ability." A more reasonable and universal principle is that payment should be according to benefit, that each should pay for what he gets, not according to his wealth, but according to the value of what he receives.

The benefits of good government and of civilization result in increase of land values. As Thorold Rogers says—"Every improvement in the condition of the earth, every bridge, every highway, every railroad, raises rent." Is it not then obvious that it would be just to tax equally all lots of equal value, whether they be used or unused, built upon or vacant, highly improved, poorly improved, or unimproved? Would it not be fair and equitable to require of every lot owner that he pay a tax equal to that paid by each of the others, provided the lots are equally desirable and valuable? Why fine people for making improvements? Why not have every one pay in taxes into the common treasury an amount proportionate to the value of the land he owns, regardless of whether that land be used or not used, thus encouraging landowners to employ labor in making improvements, rather than to hold land out of use in the hope of future higher prices?

The first step in this proposed change in taxation is to assess

the value of the land separately from the value of the improvements thereon, as is now done in New York City and in many other municipalities, so that the taxation on the value of land becomes separate and distinct from all other taxation. Then can follow the reduction or the abolition of the more objectionable of the taxes now levied, with an increase in the land-value tax sufficient to make up the necessary revenue. This process can be made as slow or as rapid as may be deemed expedient—slow enough as in Pittsburgh, Pennsylvania, to permit new adjustments to be easily made, or more rapidly as in Vancouver, where it is proved to be desirable.

Many of the holders of unused lots, and of lots but partly used, if compelled to pay taxes thereon as great as those imposed on fully improved lots of equal value, would at once begin to make improvements. This would give to labor increasing employment at increasing wages; business of all kinds would be stimulated, and this would cause a still further increased demand for houses by the people thus financially enabled to occupy them. This increase in buildings would go on until the market was fully supplied at prices little more than the cost of producing the buildings. Except for the natural increase in demand caused by increase in population, this newly stimulated demand for houses would eventually reach its limit and cease; but with labor fully employed at good wages such demand would not be satisfied until every industrious and deserving man had a comfortable home. And then there being more lots than would be needed for building, holders would seek purchasers, at reduced prices, among those who could put the land to other uses. The extraordinary results of the cultivation of vacant lots by the unemployed in Philadelphia and other places show that there is a steady and unsatisfied demand for such lands for various purposes.

And if land values became the one source of all public revenue (federal, state, county and local) the tax on land values would be sufficiently heavy to reduce the selling value of land to almost nothing. This has in fact been the practical result in the single tax experiment colonies at Arden, Delaware (near Philadelphia), and at Free Acres, New Jersey (near New York). For the selling value of land is but the capitalization at the current rate of interest of so much of the rental value of the land as is not taken in taxation.

This is what single-taxers mean by "free" land—not that possessions would be disturbed, nor titles invalidated; not that there would be any decrease in deeds or books of record, but that land would, under the new system of taxation, be very cheap and its use therefore easily had by whoever desired to work it.

No adequate idea of the vastness of the benefits to follow this change in taxation can be gotten by considering town lots only. It is proposed that all land be taxed at its full rental value. A very few men now own the anthracite coal deposits of the country; they permit the mining and marketing of only a limited amount of coal, withholding from use the far greater part of the coal lands to maintain an artificially high price in the coal market. But were all unused coal lands (now rated at merely nominal figures) taxed at their full rental value, and thereby forced into the market either for sale or for lease, capital would be attracted to the opportunities thus offered and new mines would be opened up. The operators of these new mines would be free, not only from the burden of interest charges on bonds issued for the purchase of surplus lands and from the cost of holding other mines and lands out of use, but also free from taxes on buildings, machinery, animals, timbering, piping and all other capital invested. To cut out these fixed charges and abolish taxes on the capital used, and to introduce free competition among coal-mining operators, would both lower the price of coal and increase the amount of coal marketed. At the same time, competition among the increased number of coal-mining operators for the services of miners would tend to raise miners' wages—a tendency that would be stimulated because the actual coal mine workers would always be free to pool their capital and form operating companies on their own account.

And when we further consider that the lands to be taxed are not only town building sites and coal fields, but the immensely valuable lands that lie in or near the large cities or border our harbors, and the millions of acres of virgin farm lands, but also railroad rights of way, vast mineral resources, etc.,—then we see that in land-value taxation we have an easy, simple method of forcing the hand of monopoly to relax its hold upon natural resources. This will remove the artificial barriers that we have found to be the cause of industrial and business overcrowding, the removal of which would be the means of opening more opportunities of em-

ployment for both capital and labor than could be taken advantage of by increasing population for generations to come.

As a fiscal measure, practical men will see that greatly improved industrial and business conditions must result and have resulted from the proposed tax.

This "reform" has already passed the merely experimental stage. New Zealand, the Canadian northwest provinces and many other places have had it in partial operation for years. So it is sufficient for us to note, without giving a history of the development of what Thomas G. Shearman called "natural taxation," that every district that has tried a little wants more of it, and by its competition forces its rivals to adopt it also. There are no steps backwards.

It is true that nowhere, as yet, has enough of the annual rental value of land been taken to kill speculation. When some place does take enough to make it unprofitable to hold any lands idle, it will hardly be necessary to call attention to the plan; it will call world-wide and insistent attention to itself.

But to them that take a higher and a broader view of man's social relations—to them that can feel the power of a great truth and by it be lifted "above the mists of selfishness"—to them should the proposal appeal even now with greatest force. For while it is not claimed that this reform will really alter human nature, as it would not be claimed that removing a plank from the lawn would cause the grass to grow, yet, just as removing the plank would permit the expression of nature's forces in healthy, growing grass, so will the destruction of land monopoly make men economically free—free to employ themselves individually or coöperatively, each free to acquire and enjoy without encroaching on another's opportunity; free to be generous and high-minded without fear of coming to material want. This freedom of both labor and capital to work can fairly be expected to be the most complete of all cures for unemployment. Then, with superabundant production, will be realized the ideal that without bringing want upon ourselves, we may "give to him that asketh and from him that would borrow turn not away."

SOCIALISM AS A CURE FOR UNEMPLOYMENT

By John Spargo,

Author of *Socialism*.

The problem of unemployment is co-extensive with the capitalist system. Wherever the capitalist economy prevails we find the problem of unemployment. Even in times of industrial expansion and prosperity there is always a surplus of available labor in some places and some occupations, though there may be a deficit in other places and other occupations. Never at any time has the capitalist economy of any country provided a job for every worker and a worker for every job.

The presence of considerable masses of unemployed workers is essential to the capitalist system. The battalions of workers out of employment constitute the reserve army of the industrial system. Without a safe margin of available unemployed labor the whole edifice of capitalist society would totter and fall. That this is true hardly needs demonstration. One has only to consider what results must inevitably follow the complete absorption of the labor supply, so that not a single worker remained unemployed. Given such a condition, there would be no effective check upon the workers. In the struggle against the employing class in which they are engaged they would no longer be at a disadvantage. They would no longer fear the competition of unemployed workers ready to take their jobs. They could and would dictate their own terms. A virtual dictatorship by the proletariat would result. It is the consciousness that other workers to take their places are available which sets definite and sharp limits to the demands of the workers under the present industrial system.

But if a certain reserve of unemployed labor is a necessary condition of capitalism, too large an amount of it is a menace. When the army of unemployed workers swells beyond the limits of safety, as it tends constantly to do, the foundations of the social order are endangered. There is an increase of poverty, of vice and of crime which threatens to engulf society. Moreover, social discontent and resentment assume alarming proportions. Then it

is that the proletariat is in danger of rising like another blind Sampson and pulling down the pillars of the entire social system. Then it is that the problem of unemployment assumes a frightful mien. Then it is that the lords of industry call upon their servitors and retainers for relief and protection. Then it is that we turn feverishly to the discussion of remedies for unemployment.

Now, it is an inherent characteristic of the capitalist system that it tends always to increase its reserve army of unemployed workers beyond the limits of safety. Inventions and improvements in industrial processes displace large numbers of workers. True, in time, adjustments are made, so that inventions and improved methods of productions are not be to opposed by enlightened workers as creators of unemployment and its attendant evils. Nevertheless, the adjustments take time and the displaced workers do become unemployed for a while, and often for a very long while.

Despite the tendency to monopoly exhibited by modern industrial society, there is still a vast amount of competition and that competition is a factor, though by no means the sole factor, in the lack of anything like a scientific organization of industry. Production is still haphazard, anarchical and unregulated. We produce certain commodities feverishly, stimulated by a rising market. Workers are overworked with lamentable ill effects, both physical and moral. Then there is a more or less sudden halt. The market is glutted. From overwork the workers pass rapidly to unemployment. From my New England garden I can look down upon the factories in the village below. Although the factories are engaged in the production of staple goods, for which the demand is more or less steady and consistent, they are subject to great fluctuations. There are periods when work is carried on night and day, when the workers are "used up" at a terrible rate; there are periods when there is very little work, when the factories are nearly silent and the workers are idle on the streets. Much of that periodic unemployment which we associate with the seasonal trades is in reality due to the same lack of scientific organization and might be averted.

Finally, capitalist industry, through its intensive exploitation of the workers, its reckless disregard of their physical well-being and its passion for "cheapness," is constantly making large numbers of workers *unemployable*. The excessive strain of modern industrial life, coupled with the bad conditions of life and labor, prematurely

exhaust great masses of workers and unfit them for remunerative employment. As soon as they have become old, or have lost their efficiency through any cause, these "unemployables" are cast upon the *debris* heaps of our cities. This aspect of the problem is the one which is most tragic and terrible of all.

Whatever palliation of the worst ills of unemployment may be possible within the limits of capitalist economy, no real solution of the problem is possible within those limits. The complete abolition of unemployment is only possible in an industrial economy fundamentally different from capitalism. That result might be attained through a system of what is called state socialism, that is to say, the substitution of the state for the capitalist and of the government ownership and operation of industry for the present method. Such a system ought not to be confused with democratic socialism. Perhaps state capitalism would be a better name for it than the term state socialism which is usually applied to it.

It is to be observed that unemployment has never, within the capitalist economy, resulted from the full and complete satisfaction of all the felt wants of the members of society. On the contrary, the greatest amount of unemployment is always coincident with the most widespread lack of commodities. We have the appalling paradox of idle shoemakers willing, able and anxious to work and a vast horde of shoeless men, women and children. Textile mills and clothing factories are idle, their operatives eager and willing to work, while hundreds of thousands need clothing. There is only one reason why the idle shoemaker is not working to make shoes for the idle textile workers and why the idle textile worker is not working to make cloth to clothe the idle shoeworkers. They lack the power to make their demands efficient. Production is not organized primarily for the purpose of supplying needs, but primarily for the purpose of affording profit to investors. Our criterion is not whether goods are needed but whether goods can be profitably sold. So long as we have production for profit rather than production for use, so long we shall have idle makers of clothing on one hand and shivering, ragged human beings on the other hand. There can be no escape from the evils of unemployment until we cease producing for profit and organize our production with the single purpose of supplying the felt needs of all the members of society.

Now socialism proposes to do that very thing. Under socialism, the anomaly of a co-existent dearth of consumption goods and an unemployed industrial army could not exist. Nor would the unemployment of workers in one city be possible while other workers in the same industry in another city were overworked. For socialism involves the reconstruction of industry upon the principle of production for use. It involves the rationalization of industry, the proper adjustment of production to the social requirements. It is entirely possible to take the element of chance out of the business of production; to know with a fair degree of precision the total volume of commodities which it is necessary to produce within a given time.

Socialism, then, implies a highly developed organization of industry which will reduce to a minimum the waste, the overlapping, the uncertainty of capitalistic production. For industrial anarchy it would substitute industrial law, and for industrial guess-work industrial science.

A socialist society would not only find useful employment for all those elements which go to make up the unemployed mass of the present system, but also for the vast numbers now employed at useless and anti-social tasks, for which a socialist economy could have no place. Most of the labor spent in advertising belongs to this category. So do the vast majority of travelling salesmen, lawyers, brokers, bankers, clerks, insurance agents, real estate agents, and so on. So do the vast majority of those employed in the manufacture of munitions of war, and in the naval and military services.[1]

That which would be quite impossible for capitalism with its planless production would be quite easy for socialism with its scientific organization of industry. It could carry out the Pauline injunction of denying the right to eat to the shirker who refused to work though capable of doing so. It could apply the principle, moreover, to the Silly Willies on top of the social scale as well as to the Weary Willies at the bottom.

It may be objected that this simply sets forth the possibilities

[1] The maintenance of a sort of international police force would, I think, be quite compatible with the spirit of socialism, and would require a relatively small amount of labor of the kind described in the latter part of the foregoing sentence.

of Utopia. That is true, of course, but it is hardly pertinent as a criticism. The socialist who points out that the problem of unemployment is insoluble within the capitalist economy, and that socialism involves the scientific organization of industry and the elimination of unemployment has sufficiently answered the question, "How will socialism do away with unemployment?"

Of course, other supplementary questions may be asked. The socialist may be asked how the ideal socialist state is to be attained, how the industrial reorganization essential to it is to be accomplished. Or he may be asked the very much more difficult question, "What would the socialists do now to cure unemployment if they were elected to power?"

This latter question is highly pertinent to the present discussion and I propose to answer it briefly. The question is not only pertinent, but highly important, for it is inconceivable that socialism will be attained suddenly, that there will be a sudden transformation from a capitalist economy to a fully developed socialist economy. If the socialist state of society is to be reached at all, it will be reached through a series of changes. It will be an evolution. And in the transition period there will be many attempts to deal with the evils of unemployment. In proportion as men recognize the impossibility of doing away with unemployment under capitalism, and gain confidence in the socialist movement and its principles, socialists will be elected to office and expected to demonstrate their capacity to deal with this baffling problem. And upon their success or failure depends, to no slight extent, the rate of future progress toward socialism.

It may not be quite fair to impose this test upon the socialist. He is entitled to say that the problem which capitalism has created and found insoluble cannot be solved within the capitalist system of production, even by socialist legislators and executives. He is fairly entitled to say that, so long as the capitalist economy prevails, such superficial modifications of the system as are possible short of a revolutionary departure, such as the acceptance of the socialist principle would be, could not make possible the abolition of unemployment.

Nevertheless, the socialist movement must be and is prepared to meet the challenge. It has a fairly well defined program. If we assume for the purpose of this discussion that the next national

campaign will result in the election of a socialist president and an effective socialist majority in Congress (a result which, I need hardly say, I do not anticipate!) we shall have a fairly clear and definite idea of the task with which the socialist administration would be confronted.

Socialism, contrary to a widespread opinion, does not of necessity imply the ownership and operation of all industries by the state. The aim of socialism is not the realization of a plan of state ownership, but rather, the entire elimination of economic exploitation. That might well be effected through voluntary coöperation in some industries, and it is considered likely that such voluntary coöperation by groups of workers will hold an important place in the socialist economy. That being the case, a socialist administration would be able to palliate the evils of unemployment and, at the same time, contribute to the upbuilding of the socialist economy, by organizing voluntary coöperative associations of producers and advancing them the necessary capital free of interest. This method, advocated long ago by Lassalle and Louis Blanc, may yet prove to be an important item in a constructive socialist program.

The socialist administration would naturally take up the task of dealing with the unfit, the unemployable. In this category are included the aged and outworn, the prematurely exhausted, the sick, the maimed and the morally defective, including the tramps, the lazy, the inebriate, the shiftless and dissolute. It is obvious that these varied groups cannot be dealt with uniformly. For dealing with the morally defective, groups named labor colonies appear to offer the only satisfactory method. The penal characteristics of these colonies could easily be varied to suit the needs of the different classes of moral defectives sent to them.

The other groups of the unemployable must be differently dealt with, of course. Pensions for the aged and outworn, and for the maimed and diseased would have to be instituted. The most progressive nations of the world have already made considerable progress in this direction. For those who are partially disabled, light work might be provided in publicly operated workshops or farm colonies with pensions to supplement the inadequate earnings.

The state would have to furnish transportation for workers who desired to move from places where there was a surplus of labor

to places with a deficit of labor. Today we have the anomaly of tens of thousands of workers in the industrial centres idle and vainly seeking employment, while in other parts of the country thousands of farmers vainly call for laborers. The unemployed worker of Pittsburgh or Jersey City does not go to Texas or Kansas, for very obvious reasons. The cost is prohibitive. The work offered is for a few weeks or months at most. If he could get free transportation to and from the job in Texas or Kansas, the worker in Pittsburgh or Jersey City would perhaps be glad of the change of employment and location. Free transportation for workers, operated in conjunction with efficient employment bureaus, would do much to adjust the supply of labor to the demand and go far toward solving the problem of the "hobo."

We have learned through the great world war that the modern state, as a military necessity, must resort to the mobilization of labor no less than to the mobilization of armies and navies. We have yet to learn that the mobilization of labor in times of peace is an economic necessity of the highest importance. The "right to work" must be established. If it can only be realized through the assumption of the control of industry by the state that step will be taken. Capitalist industry simply proves inadequate to the social need.

Of course, the socialist program would include insurance against unemployment. The time has come when we must recognize that each industry must bear the cost of maintaining its own victims. Whether industrial accidents rob the worker of a limb, or industrial processes or conditions rob him of health and strength, or industrial uncertainty robs him of his employment, economically the result is practically the same. His wage-earning capacity has been destroyed or impaired, and the industry ought to bear the burden.

Working upon these lines, the socialist administration, charged with the heavy responsibility of repairing the wrecks of capitalism, and peacefully effecting the transition to socialism, would doubtless find that the new social wine could not be contained in the old capitalist bottles. The new social spirit would require new social forms for its expression. Public ownership would more or less rapidly take the place of capitalist ownership, and as fast as the change occurred the democratization of the new collective property and

responsibility could begin. And in proportion as industry becomes socialized the importance of remedial legislation and effort will be lessened and the importance of preventive legislation and effort increased.

But while a clear-visioned socialist administration, working within the capitalist system, could do much to reduce unemployment and to mitigate its worst evils, unemployment itself will never be wholly abolished until we have attained the socialist state.

STATUTORY PROVISIONS FOR AND ACHIEVEMENTS OF PUBLIC EMPLOYMENT BUREAUS

By Henry G. Hodges,

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Recognizing one of the purposes of government to be the supplying of such information to its citizens as will promote their welfare, Governor Glynn of New York, in his message of March 6, 1914, emphasizes the state's duty to provide a system of labor exchanges. He concludes that "there is no information more vital to the citizen of the state than knowledge of where he may obtain work to feed and clothe himself and his dependents." In its first annual report the United States Industrial Commission points to *unemployment* as one of the principal causes of industrial unrest.[1] The same report reiterates advice received from various states to the effect that the condition of unemployment is nation-wide. The striking fact is that the issue is more acute on the Pacific coast than in the older sections of the East. This distress is caused largely by an antiquated system of labor marketing. The present system, in most cases, is adaptable to conditions that existed when the United States was east of the Alleghenies. There have recently developed hopeful signs of the abandonment of the old labor peddling system.

The two objects the legislators have in mind in establishing state free employment bureaus are: *first*, to regulate private agencies through competition; *secondly*, to fulfill the state's duty in bringing together the man and the job.[2] The purpose of the state agency is to care for the *reserve* labor; to keep that reserve as low as possible by a coöperating system of labor exchanges. The efficient reserve for the United States is not gauged by the sum of the reserves necessary for its many thousands of factories. A more intensive shifting of the shiftable labor must be accomplished.

[1] *First Annual Report of the Commission on Industrial Relations.* Washington, D. C., 1914, p. 21.

[2] For an extended account of the objects of the state employment bureaus, see *United States Labor Bulletin* No. 109, p. 35.

Nineteen states have passed laws providing for more or less effective systems of free employment offices. A bill with a similar purpose has been reported favorably (March 30th) to the legislature of California, by the committee to which it was referred. A bill was presented to the Pennsylvania legislature, providing for a system of public employment offices in the state, on April 7, 1915. Three of the nineteen established bureaus, *viz.*, Nebraska, Maryland and South Dakota, are inactive; two more, Kansas and West Virginia, are operating in a very limited manner.

Municipal bureaus are operated independently in seven states, as follows:

State	Bureaus	Established
Arizona	Phoenix	1914
California	Los Angeles	1893
	Sacramento	1902
Missouri	Kansas City	1912
Montana	Butte	1902
	Great Falls	1905
New Jersey	Newark	1909
New York	New York	1896*
Ohio	Cleveland	1913*
Oregon	Portland	1912
Washington	Seattle	1894
	Tacoma	1904
	Spokane	1905
	Everett	1909

* Abandoned.

Late in 1914 the Bureau of Immigration of the United States Department of Labor began the establishment of thirty-eight branch offices throughout the country, as indicated by Table I. These offices were established primarily for the distribution of farm labor.

"The entire country has been divided into eighteen distribution zones, and the distribution of labor in each zone will be in charge of an officer of the immigration service at the headquarters of each zone. It is hoped to have this plan in operation throughout the country within the next few months."[3]

[3] Extract from a letter from the United States Department of Labor, dated December 3, 1914.

TABLE I*

ZONES FOR DISTRIBUTION OFFICES

September 1, 1914

Zone No.	Headquarters	Territory	Sub-branches
1.	Boston, Mass.	Mass., R. I., Maine	Providence, Portland
2.	New York City	N. Y., N. J., N. H., Vt. Conn.	Buffalo
3.	Philadelphia	Pa., Del., W. Va.	Pittsburgh
4.	Baltimore, Md.	Maryland	
5.	Norfolk, Va.	Va., N. Car.	
6.	Jacksonville, Fla.	Fla., Geo., Ala., S. Car.	Birmingham, Charleston, Savannah, Mobile
7.	New Orleans, La.	La., Miss., Ark., Tenn.	Gulfport, Miss. Memphis, Tenn.
8.	Galveston, Tex.	Texas, N. Mex.	Albuquerque
9.	Cleveland, Ohio	Ohio, Kentucky	
10.	Chicago, Ill.	Ill., Ind., Mich., Wis.	Detroit
11.	Minneapolis, Minn.	Minn., N. D., S. D.	
12.	St. Louis, Mo.	Mo., Kan., Okla., Ia.	Kansas City, Des Moines
13.	Denver, Colo.	Colo., Wyo., Neb., Utah	Salt Lake City
14.	Helena, Mont.	Mont., Idaho	Moscow, Idaho
15.	Seattle, Wash.	Washington	
16.	Portland, Ore.	Oregon	
17.	San Francisco, Cal.	Nor. Cal., Nevada	Fresno, Sacramento
18.	Los Angeles, Cal.	Southern Cal., Ariz.	San Diego, Tucson

*Table supplied by Department of Labor.

The foregoing zones for the purpose of facilitating the distribution of farm labor in the United States are hereby established.

Approved:

(Signed) W. B. WILSON, *Secretary.*

(Signed) A. CAMINETTI, *Commissioner General.*

STATUTORY REGULATIONS

Dates of Laws

Of the nineteen states which have passed laws providing for free employment agencies several have passed more than one law on the subject. In such cases the provisions of the most recent act are given.

The bureau first created under state law is that of Ohio, established 1890. Laws creating state bureaus began in earnest with the twentieth century, although two more, Missouri and Illinois, were established in 1899. Most of these older laws have since been materially modified or replaced entirely. Between 1900 and 1905 Connecticut, Maryland, Michigan, Minnesota, West Virginia, Kansas and Wisconsin passed laws providing for free labor exchanges. Massachusetts followed in 1906; Colorado and Nebraska in 1907; Oklahoma and Rhode Island in 1908; Indiana in 1909; and by 1914 Kentucky, South Dakota and New York had provided for "state employment bureaus."

General Supervision and Local Offices

There are two favorite ways of providing for the location of local employment offices. The first is to name a minimum population standard; the second is to leave the selection to the discretion of those in charge of the bureau. The first method is followed by Colorado, Illinois, Indiana and Missouri; the second by Wisconsin, West Virginia, Rhode Island, Massachusetts and New York. In Connecticut, Michigan, Minnesota and Maryland the legislators themselves selected the locations for the local offices, and provided accordingly in the laws. Ohio is divided into five districts, with a local office in each district. Oklahoma has a central office at the capitol, and two branch offices. Kansas provides for local offices in cities of the "first and second class." Nebraska, Maryland and Kentucky provide for a central office only, the business to be transacted by mail. Where population is made the basis for the location of local offices, the minimum requirement ranges from 25,000 in Colorado to 75,000 in Missouri. Colorado allows two offices in a city of 200,000, while Illinois provides for three in a city of 1,000,000 population. The California bill provides for offices "in the cities of San Francisco, Los Angeles and Sacramento, and thereafter, whenever he [commissioner of labor statistics] deems it necessary, in other cities and towns." [4]

In a great number of cases the general supervision of the employment bureau is given to the commissioner, deputy commissioner, or chief, as the case might be, of the Bureau of Labor Statistics. Such is the case in Colorado, Connecticut, Indiana, Maryland,

[4] *Senate Bill No. 325*, Section 2. Introduced January 18, 1915.

Massachusetts, Missouri, Rhode Island and in the proposed law in California. The Massachusetts commissioner has requested in consecutive annual reports to have the Massachusetts bureau transferred from his department. The commissioner of labor directs bureau affairs in West Virginia, Oklahoma, Ohio, Nebraska, Minnesota, Michigan and Illinois. Kansas and New York, and Pennsylvania in its proposed act, provide for a Director of Free Employment, and Wisconsin, under its 1911 law, gives full supervisory powers to the Industrial Commission created by the act.

Most states supply a superintendent and an assistant for the local office. In some cases this force is supplemented by a clerk, interpreter and special agents. Colorado, Connecticut, Illinois, Indiana, Massachusetts, Minnesota, Missouri, Ohio, Oklahoma and New York have provided for some combination of these officers. Kansas thrusts the duties of the local office on the city clerk, unless the local council provides otherwise. No extra compensation is allowed the city clerk, but a "penalty" provides that he shall be relieved of this work unless it is properly performed; "Provided, Such removal shall not affect the tenure of his office as to its other duties."[5] Maryland and Nebraska provide for a central office only, with such clerical assistance as may be deemed necessary. The Illinois statute states that "The assistant superintendent or clerk shall in each case be a woman."[6] The statutes of Michigan, Rhode Island, West Virginia and Wisconsin leave these details to the discretion of those in charge.

Colorado, Indiana, Kansas, Missouri and Oklahoma fix the superintendent's salary at $1,200 per annum. Where an assistant is provided the remuneration ranges from $600 in Oklahoma, to $1,000 in Colorado. Illinois provides $1,500 for the superintendent, $1,200 for the assistant and $1,000 for the clerk. New York has no statutory provisions regulating salaries, but in practice has allowed its superintendents $2,000, with graded salaries for subordinate officers. The other states leave this matter to the discretion of the supervisory powers.

[5] *General Statutes of Kansas, 1909.* Chapter 185, Section 12. Law of March 29, 1901.

[6] *Revised Statutes of Illinois for 1913.*
Senate Bill No. 165, Section 2. Approved June 21, 1913.

Appointment and Tenure of Office

In all cases where the law enumerates provisions on the subject of appointment, the recommending power, at least, is given to the person having general supervision. In the majority of cases this same supervisory power has the privilege of appointment. In Illinois, the "Governor, with the advice and consent of the Senate," has the actual appointing power.[7] The New York law provides for civil service appointments. The "director," with a $4,000 salary, is specifically included in this rule, the law stating that, "As a part of such examination each candidate shall be required to submit a detailed plan of organization and administration of employment offices such as are contemplated by this article."[8] The proposed Pennsylvania law leaves all appointments to the commissioner of labor, but enumerates the qualifications which the "director" should possess. Kansas, Maryland, Minnesota, Nebraska, and California, in its present bill, give no instruction on this subject.

Colorado, Illinois and Ohio provide that their local officers shall serve for a period of two years, "unless sooner removed for cause." The superintendent has charge of engaging and dismissing his subordinates in Ohio. In Oklahoma the local officers serve during the term of the commissioner who appointed them. Nebraska, Minnesota, Maryland and Kansas, making no provision for method of appointment, likewise make none for tenure of office. The other states, with the exception of New York where civil service regulations are required, leave the tenure of service of local officers to those in charge. Three of these states have, in practice, adopted civil service regulations.

Advisory Committee

A recent development in the management of the local offices is the advisory committee. Such committees are provided for in the New York law, are specified by the Wisconsin Industrial Commission, and are included in the proposed law for Pennsylvania. This committee, as its name signifies, acts in an advisory capacity

[7] *Revised Statutes of Illinois for 1913. Senate Bill No. 165*, Section 2. Approved June 21, 1913.

[8] *New York Labor Laws of 1914*. Chapter 181, Article 5-A, Section 66.

to the local superintendent. Employers and employees are represented on the committee, which generally elects its own chairman. The New York law requires: [9]

> At the request of a majority either of the employers or of the employees on advisory committees, the voting on any particular question shall be so conducted that there shall be an equality of voting power between the employers and the employees, notwithstanding the absence of any member.

Charge for Service and other Administrative Provisions

With two exceptions the various laws stipulate that there shall be no charge to employer or employee for the service rendered by the state bureau. The Wisconsin law leaves the question to the Commission. The 1909 law in Indiana provided that "No fee or compensation shall be charged . . . except it shall be lawful for applicants to enclose sufficient postage for all replies." [10] This provision was scarcely ever complied with in practice and was repealed in the law of March 6, 1911. Nine states name penalties for accepting fees. The most common penalty is "not less than twenty-five ($25) dollars nor more than fifty ($50) dollars, or imprisonment in the county jail not more than thirty days, or by both such fine and imprisonment at the discretion of the court." [11]

Four western states, and Rhode Island and New York in the east, stipulate advertising as a legitimate expense. New York provides that this item shall not exceed 5 per cent of the total appropriation. The New York and Massachusetts bureaus are allowed to carry on outside work of a social nature. Massachusetts and Michigan have a fund for general expenses. Colorado and Illinois provide for interpreters when advisable. Several states declare that stationery and printed matter shall be furnished by the secretary of the state.

In cases where the number and nature of the reports of local offices are not left to the direction of the commissioner, the laws generally provide for weekly and annual reports, the annual report to contain a detailed expense account as well as more or less statistical data. Ohio requires a semi-annual report in addition to the

[9] *New York Labor Laws of 1914.* Chapter 181, Article 5-A, Section 66-f.

[10] *Laws of Indiana.* Chapter 155, Section 3. Approved March 8, 1909.

[11] *General Statutes of Colorado.* Chapter 129, Section 7. Approved April 5, 1907.

weekly report. All states require fairly complete records of office work. The nature and amount of statistical information is generally left to the commissioner. When complete social statistics are provided for it is generally stipulated that they shall not be obligatory on the applicant, nor shall such files be open to the general public. When this information is published it shall be presented in such a way as to disguise its source.[12] A favorite statistical requirement is "the cause and duration of non-employment."[13]

The order in which positions shall be filled is mentioned in only a few cases. The Kansas law states that applicants shall be notified of positions in the order of their application. Massachusetts gives preference to "residents of the commonwealth."[14] Rhode Island restricts privilege of registration to residents of the state.[15]

Several state laws go into detail as to the management of the local offices. Colorado, Illinois, and Indiana provide that separate rooms shall be given over to the sexes. Minnesota, Missouri, Nebraska and Rhode Island limit the life of an application to thirty days. Several laws require references, but none provides for the use of these references by the bureau. The West Virginia bureau, under the present management, is making a practice of following up references. In those states where an effort is made to place ex-convicts, the past of the applicant is made plain to the employer. Six laws require local offices to coöperate with large employers of labor.

Strike Policy

The great majority of states make no provision as to a strike policy in their laws. The New York law provides that all positions shall be listed with information in cases where strikes exist.[16] The policy of the different states is noted on Table II. The California bill contains no statement in this connection. The

[12] *General Statutes of Indiana, 1911.* Chapter 274, Section 3. Approved March 6, 1911.

[13] *General Statutes of Colorado, 1907.* Chapter 129, Section 3. Approved April 5, 1907.

[14] *Laws of Massachusetts. Acts of 1909.* Chapter 514, Section 5. Approved June 18, 1909.

[15] *General Laws of Rhode Island, 1909.* Chapter 81, Section 4.

[16] For the wording of this provision see *New York Labor Laws for 1914*, Chapter 181, Article 5-A, Section 66-g.

strike policy occasioned much controversy in the drafting of the Pennsylvania bill. It appears similar to the New York provision.[17]

Regulation and Supervision of Private Agencies

California, Connecticut, Illinois and Missouri provide for the regulation of private employment agencies in the same law establishing the state employment bureaus. In all of these cases it may be seen from the comparative amount of space given to the state and private agencies that it was the purpose rather to curb the private agency than to establish an efficient state agency. Most of the other states regulate private agencies through a separate law. Provisions for a system of inspection and reports have proved effective in several instances.

Appropriations

Several state laws provide for the first appropriation for the employment bureau. A few mention subsequent appropriations. Kansas provides $1,000 and West Virginia $500. Results in these states are commensurate with the appropriations. Indiana allows $4,500 for total expenses. Some states leave the appropriation to the general court. The Michigan bureau draws its allowance from the $40,000 appropriation to the Department of Labor. The first annual appropriation for the New York bureau was $62,631.66. The proposed California act asks for $50,000 for the first year.

ACHIEVEMENTS

Some of those who are engaged in the actual work of managing employment bureaus contend that much of the success of the undertaking depends on the powers and control of the bureau. J. T. Fitzpatrick, Commissioner of Labor Statistics of Missouri, strongly urges that the bureau be under the control of one man with broad powers and be independent of all other state departments. A less restricted policy would enable the bureau to undertake several lines of outside work, whose ultimate aim is the prevention of un-

[17] *Definitions.*—Colorado, Connecticut, Illinois, Indiana, Nebraska, Oklahoma and Rhode Island have considered it necessary to define various terms used in their respective acts. The usual terms defined are "applicant for employment," "applicant for help," "person," "employment agency," and "private employment agency."

TABLE II

STATUTORY LIMITATIONS OF

State	General supervision	Personnel local bureau	Bureaus in cities of	Local superintendents	
				Appointment	Tenure
Col.	Deputy comm. bu. of statistics	Supt. Asst. supt.	Over 25,000 Two for 200,000	Commissioner recom. by deputy	2 yrs. Remove "for cause"
Conn.	Commissioner bu. of statistics	Supt.	5 Cities named	Commissioner	Pleasure of commissioner
Ill.	Labor commissioner	Supt. Asst. supt. Clerk	50,000 3 for 1,000,000	Gov. and senate Recom. by board	2 yrs. Remove "for cause"
Ind.	Chief bu. statistics	Supt. Clerk	50,000	Chief of bu. statistics	Pleasure of chief
Kan.	Labor commissioner	Clerk	1st Class 2nd Class	Labor commissioner	Pleasure of commissioner
Ky.	Labor commissioner	Clerk	Capital	Labor commissioner	Pleasure of commissioner
Md.	Chief bu. of statistics	No provision	Baltimore	No provision	No provision
Mass.	Director bu. of statistics	Supt. Asst. Clerks	Selected by director	Director	Pleasure of director
Mich.	Labor commissioner	Direction commissioner	Names 10 cities	Commissioner	Pleasure of commissioner
Minn.	Labor commissioner	Manager	Names 4 cities	Labor commissioner	Pleasure of commissioner
Mo.	Comm. labor statistics	Supt. Clerk	75,000	Commissioner	Pleasure of commissioner
Neb.	Labor commissioner	Clerk	Capital	Commissioner	Pleasure of commissioner
N. Y.	Director emp. bureaus	Supt. necessary assistants	Option commissioner	Civil service	No provision
Ohio	Indus. comm.	Supt. Clerk	5 Districts 1 each dis.	Governor Recom. by commissioner	2 yrs. Remove "for cause"
Okla.	Labor commissioner	Supt.	Capital 2 Branches	Commissioner	Same as comm. Remove "for cause"
R. I.	Commissioner indus. statis.	Option commissioner	Option commissioner	Commissioner	Pleasure of commissioner
S. D.	Secretary Agriculture	Registrar of deeds	County seats	County Registrar of deeds	County Registrar of deeds
W. Va.	Labor commissioner	Option commissioner	Capital	Commissioner	Pleasure of commissioner
Wis.	Industrial commission	Option commission	Option commission	Commission	Pleasure of commission

TABLE II—*Continued*

STATE FREE EMPLOYMENT BUREAUS

General expense	Social statistics	S. S. records public	Interpreter	Office records	[1] Policy in case of strike	Preference in positions
Advertise; printing, etc. sec. of state	Option commissioner	No	Yes	Complete	[1] No strike breakers	No provision
No provision	No provision	No	No provision	Complete	[1] No strike breakers	No provision
Advertise: printing, etc. sec. of state	Yes	No	Yes	Complete	[1] No strike breakers	No provision
Advertising	Yes	No	No provision	Complete	No provision	No provision
$500.00	Yes	No provision	No provision	Yes	[1] "Neutral"	Order of application
					[1] "Neutral"	No provision
Advertise	No provision	No provision	No provision	No provision	No provision	No provision
By general court	As required	Yes	No provision	Complete	[1] Applicant informed	Residents of commonwealth
Advertise; printing, etc. by state	Option commissioner	No provision	No provision	Complete	[1] No strike breakers	No provision
No provision	Yes	No provision	No provision	Complete	[1] Applicant informed	No provision
No provision	Yes	No provision	No provision	Complete	[1] No strike breakers	No provision
No provisicn	No provision	No provision	No provision	Names, address, work	No provision	No provision
Advertise	Option commissioner	No provision	No provision	Complete	Applicant informed	No provision
No provision	Option commission	No provision	No provision	Complete	[1] No strike breakers	No provision
Advertise	Yes	No	No provision	Complete	[1] No strike breakers	Fitness
Advertise	Option commissioner	No provision	No provision	Complete	[1] Applicant informed	Residents of state, only
Shared by co'ty and state	Yes	Yes	No provision	Complete	No provision	Fitness
No provision	No provision	No provision	No provision	No provision	[1] "Neutral"	No provision
No provision	Option commission	Option comm.	Option comm.	Option comm.	Option commission	Option commission

[1] From "Unemployment," *American Legislative Review*, May 1914, p. 365. Not a statutory provision.

employment, such as vocational guidance for immigrants and juveniles. This is the case in Massachusetts, New York, Wisconsin and other states where the average cost to the state of each position filled seems relatively high.[18]

It would seem that in spite of the provisions of the law the results of the local offices are, after all, dependent to a large extent on the qualifications of the superintendent. The superintendent should understand the technical principles involved in his business, the industrial problems of his state and nation, and he should be a capable manager. "He should be depended upon to train the staff, supervise the work and to develop an administrative machine that will be permanent."[19] Can such a man be had for $1,000 or $1,200? Certainly not. The result is that the local superintendents are largely unfit political appointments. As a successful western private agency writes—"With a free office, the manager, as far as I have seen, knows nothing about an employment office. He draws his $1,200 a year. If any jobs come, all right; if any help come, all right; he does not advertise for help or jobs."[20] The letters received from these local superintendents reveal both the ignorance and incapacity of all too many of them.

The lesson taught is simple. First the salary must be made large enough to attract efficient men, who should be appointed as the result of an examination and advanced in accordance with the results they produce. The experience of Wisconsin since 1911, under such a system, is sufficient recommendation. New York adopted a similar plan in 1914 at the establishment of its bureaus.

The advisory committee has had a limited but successful experience. It tends to minimize public suspicion and odium that sometimes attach to state labor exchanges. The representation of labor at the councils inspires confidence and secures a certain amount of public coöperation. The suspicion which often exists

[18] "We consider that we are fortunate in having no restrictions on our method of managing these offices, and as the Commissioner has the power to issue orders having the force of law, we can handle the work much more expeditiously than if we were hampered by statutory provisions." Extract from a letter from M. D. Hammond, Vice-Chairman of the Industrial Commission of Ohio, dated December 14, 1914.

[19] *American Labor Legislation Review*, Vol. IV, No. 2, publication 25, page 323.

[20] Kenworthy Employment Company, Wichita, Kansas. November, 21, 1914.

in connection with employment bureaus is well illustrated in a letter to the writer from the Secretary of the Muskegon Chamber of Commerce. Mr. Conger writes:

> The Manufacturers' division of this association formerly conducted an employment bureau, but it was discontinued because of a growing sentiment among the employees themselves that the division maintained a sort of black list. The charge was absolutely unfounded, but the labor men were firm believers in the theory that if the manufacturers did not maintain a black list there was no reason for running the bureau.

Violent opposition almost paralyzed the Massachusetts employment bureau during the first year of its operation. A broad-gauged superintendent, backed by a representative advisory committee, has a good chance to gain public sympathy.

State aid to municipalities, under certain conditions, has improved the system of labor exchanges in several states. Under such a plan the state probably furnishes the local superintendent, while the city furnishes the offices and clerical help. By such a scheme cities which could do nothing independently join the system to the advantage of themselves and the other members of the system. The heading on the stationery of the Cleveland, Ohio, office, "State-City Free Labor Exchange," immediately suggests such a scheme.

There are a number of items entering into the office efficiency of the labor exchange. The labor statistician of Colorado, Richard E. Croskey, very emphatically maintains that efficiency "cannot be obtained running on an eight-hour basis." He advocates a 6 a. m. to 6 p. m. day and outside solicitors. Stationery from the Springfield and Worcester, Massachusetts, offices announces in a frame at the top that the office hours are from 8 a. m. to 5 p. m. The Boston office, in the same manner, declares 9 a. m. to 5 p. m. to be its hours. Complete records are necessary for efficient work in the local office. Records point out the problems. Incomplete records often make glowing reports. Separate entrances for men and women, as well as one for younger workers, increase the business of the bureau. A further separation of immigrants, clerks, etc., facilitates the usefulness of the work.

Advertising is an important function of the successful bureau. Too often this item is unprovided for. Many schemes have been developed to keep the purposes of the bureau continually before

the public. In a newspaper report, the commissioner of Missouri calls attention to a novel plan adopted by his department. "Every letter-head . . . . and all printed matter, with available space extensive enough to be used for that purpose, will carry a display 'ad,' dealing with the scope of the state free employment bureau and emphazing that the service is absolutely free."[21] The superintendent of the Denver, Colorado, office reports to his chief that the efficiency of his office could be increased 50 per cent if a reasonable amount were allowed for advertising.[22]

During the month of November, 1914, the employment office at Dayton, Ohio, had solicitors visit 109 employers. Coöperation with the employers, secured largely by such means, is an important factor in the growth of the Minnesota offices.[23] These offices placed over 55,000 persons during the year ending June 30, 1914, at an average cost of 17.7 cents. Another item seldom provided for in the laws or policy of state employment offices is the privilege to advance transportation. W. C. Daily, superintendent of the office at Colorado Springs, Colorado, says: "One of the greatest handicaps to a free office is the lack of transportation which the fee office often provides."[24] Provisions for an interpreter, messenger service, subscriptions to newspapers and trade journals, and funds for telephone and telegraph messages, aid in establishing the records for the successful offices. Milwaukee has an interpreter constantly at hand, thereby inviting the confidence of the foreign-born laborers.[25]

The greatest advantage that the state bureau has over the private agency is its possibility for centralization and consequent coöperation. If this feature is neglected there is little justification for the state bureau as a constructive agency. "The eight free employment offices now existing [in Illinois] are doing a great deal, 'tis true, but lacking as we do, a uniform and coördinate system . . . we find ourselves handicapped and discouraged in the successful conduct of our free employment agencies."[26] Coöpera-

[21] Labor Commissioner John T. Fitzpatrick in the *Democrat* of Jefferson City, Missouri, January 2, 1915.

[22] Report of Eli M. Gross to the Commissioner of Labor, December 20, 1912.

[23] *United States Labor Bulletin No. 109*. Government Printing Office, Washington, D. C., 1913, page 93.

[24] Extract from a letter to the writer, dated December 4, 1914.

[25] Report of Wisconsin Industrial Agency for 1914, page 41.

[26] Extract from a letter from Luke D. McCoy, Secretary for Commission of Labor, Springfield, Illinois, December 14, 1914.

tion of county clerks and supervisors produced especially good results for farm labor in Michigan during the past year. The tendency towards national coöperation of state employment bureaus is evidenced in the organization known as the American Association for Free Employment Bureaus. Coöperation with several of the departments of the federal government, such as the bureaus of building, irrigation, and harbor improvement, would also aid in a thoroughly organized distribution of labor. President Wilson, in speaking of federal agencies in his Indianapolis speech of January 9, 1915, said: "If I were writing an additional plank for a Democratic platform I would put that in."

From many sources comes the plea for specialization in the state agencies. It is pointed out how effectiveness is secured among Chicago's three hundred private agencies by a division of the field as regards kinds of positions. Each of the three state offices in Chicago covers the whole field with a comparatively small force, and is consequently a poor competitor of the private agencies. Specialization is intensively developed at the Boston office by Superintendent W. L. Sears. The central bureau in Kansas is unable to operate an extensive system due to the meagerness of its appropriation and has therefore confined itself principally to placing harvest hands during that season. W. L. O'Brien, Commissioner of Labor for Kansas, estimates that his bureau placed 60,000 men during the harvest season just passed. The allowance for this work was $1,000. Missouri offices placed 16,436 men in the harvest fields of that state during June, July and August, 1914.

Special work undertaken by many of the state offices includes settlement of claims for employees, prosecutions under the law, vocational guidance, juvenile work in schools, finishing schools, advising immigrants, securing harvesters in western states, and the inspection and prosecution of private agencies. During the year 1911-1912 the Colorado Springs office settled 1,546 claims, involving $45,620.83, without any cost to the wage-earners. Vocational guidance for children and immigrants guards against exploitation, "blind-alley" occupations and unemployment.

An idea of some of the evils of unscrupulous private agencies is given in the 1914 report of the Department of Labor and Industries of Minnesota.[27] The number of complaints and the cause of complaint is shown in the following table from the report:

[27] *Fourteenth Biennial Report, 1913–1914*, part 7, page 170.

Failure to secure employment	54
Misrepresentation by agency	20
Misrepresentation by employer	15
Unwarranted deductions from wages	9
Failure of employer to fulfill contract	11
Soliciting help without a license	6
Attempting to collect additional fee	2
Withholding baggage	1
Extortion	1
Fee splitting	1
Sending to positions without an order	1
Total	121

In reporting to the United States Department of Labor as to the charges made for registering applicants, securing positions and securing help, a private agency of Baltimore answered, in each case: "All I can get." Collusion between the agent of the large employer of labor and the private agent, induced by a splitting of fees, leads to many disgusting practices. D. M. Lyman, superintendent of the municipal office at Seattle, Washington, states that private agencies have become so interlocked with contractors and large employers of labor, that it is almost impossible for a laborer to get work in some western states without paying for it.[28]

Illinois provides a $3,600 inspector with several $1,500 assistants for regulating private agencies. During 1913 this state prosecuted 50 cases, securing 48 convictions. All private agencies, however, are not of this type. During 1911 the Illinois bureau received complaints from 92 private agencies, while 217 were free from complaint. This is, of course, not conclusive proof that no evil practices existed in the 217 cases. The director of the bureau should have, as he has in some cases, the power to suspend and revoke licenses of private agencies on his own authority, after a public hearing.

The policies that have developed in the various states in regard to supplying strike-breakers are presented in Table II. The best policy seems to be that outlined in the tentative proposals of the United States Commission on Industrial Relations,[29] as on pages 182–183.

[28] In a letter of December 14, 1914.

[29] Washington, D. C., May 5, 1914, page 12, section 36.

Any association of employers or workmen may file at a public employment office a statement with regard to the existence of a strike or lockout affecting their trade. If any employer who appears to be affected by a statement so filed applies for workers at an employment office maintained by the bureau, the superintendent shall inform him of the statement that has been filed and give him an opportunity of making a written statement thereon. No superintendent shall refer any applicants for employment to such an employer without informing them of the statements that have been received.

Cost figures per position secured are often misleading. The total cost of the office depends largely upon the amount of social work performed, for which no direct result is apparent. Some offices, because of the nature of the industries among which they are placed, supply a great amount of short time work. The Industrial Commission of Wisconsin reports that of the 25,205 positions secured during the years 1913 and 1914, 8,556 were short jobs.[30]

The causes for the failures among the state bureaus are easily discovered. In the first instance it is due to the appropriation. A small appropriation is worse than none; it accomplishes no results and is an inducement to corruption. Kansas, with its $1,000 makes an effort to attract men to harvest its crops during three months of the year. The West Virginia bureau, backed by a $500 appropriation, is inactive. In Nebraska, where the Governor serves as Commissioner of Labor, the bureau is inactive. No appropriation is provided for in the law. South Dakota has a law, passed 1913, but no appropriation has been provided and the bureau is inactive. Maryland, starting out in a half-hearted way with one office at Baltimore, dwindled until, in reply to an inquiry, the Bureau of Statistics and Information writes, under date of December 31, 1914: "I would say that the law authorizing this bureau to maintain an employment exchange has never been more than a mere statute." The appropriation is the first essential. Proper funds, managed correctly, will attract a capable personnel, which is the second *sine qua non*. The municipal offices, operating independently, are naturally limited in resources and achievements. The Newark, New Jersey, office is in charge of the city clerk and operates mostly by "want ads" and circular letters. The municipal office at Seattle, Washington, is noteworthy in its phenominally low cost per position

[30] *Biennial Report of June 30, 1914*, page 42.

TABLE III

ACHIEVEMENTS OF STATE EMPLOYMENT BUREAUS

State	State appropriation	Expense account	Directr. salary	Supt. salary	Offices	Advertising
Col.	$9,800.00	$9,800.00	Charge of deputy commissioner	$1,200.00	4	$20.00
[1] Conn.	$9,000.00	$8,765.12	Charge of comm. labor	$1,200.00	5	$100.00
[1] Ill.	$44,145.00	$43,118.90	Charge of director labor states.	$1,500.00	8	No acct.
Ind.	$9,000.00	$8,669.30	Chief Bu. Statistics	$1,200.00	5	No acct.
Kan.	$1,000.00	No separate acct.	Charge of comm. labor	$1,000.00	1	Nothing
[6] Ky.	$1,800.00				1	No acct.
[3] Md.						
Mass.	$36,350.00	$33,901.68	Charge of director statistics	$1,200.00 to $1,800.00	4	$627.17
Mich.	General for dept. labor	Approx. $9,000.00	Charge of comm. labor	$1,000.00	5	Nothing
[2] Minn.	$10,000.00	$9,799.58	Charge of comm. labor	$1,100.00	3	Nothing
Mo.	General for dept. labor	No separate acct.	Charge of comm. labor	$1,200.00	3	$100.00
Neb.	General for dept. labor	No separate acct.	Charge of comm. labor		1	No acct.
N. Y.	$62,631.66	$62,631.66	$4,000.00	$2,000.00 (graded)	5	5% expenditure
Ohio	General for indus. comm.	Approx. $20,000.00	$1,500.00	$1,500.00 to $1,800.00	5	$25.00
[7] Okla.	$4,100.00		$1,200.00	$600.00	3	No acct.
[6] R. I.	$4,000.00	$4,000.00	Charge of comm. labor		1	No acct.
[5] W. Va.	$1,200.00	$1,200.00	Charge of comm. labor	$1,200,00	1	No acct.
[2] Wis.	General for indus. Comm.	$8,888.16	Charge of indus. comm.		4	

[1] Year ending Sept. 30, 1914.
[2] Year ending June 30, 1914.
[3] Operations under the law abandoned entirely in 1914.
[4] Operation too recent for figures of value.

TABLE III—*Continued*

FOR THE YEAR ENDING DECEMBER 31, 1914

Amount transportation	Special work	Applicants	Successful	Cost per pos.	% males	Private agencies	Regulated
None	None	2 yrs. 68,346	2 yrs. 46,081	42½¢	72	42	Yes
None	None	14,483	7,284	$1.20	49	54	Yes
None	Vocational guidance, etc.	102,285	66,613	65¢	68	325	Yes
None	Coöperate with county agents	[8]approx. 40,000	[8]30,195	50¢	78	17	Yes
None	Harvest workers	1,140	716	No rec.	90	19	Yes
None	Coöperate with country banks	2,193	1,120	$1.63		No rec.	Yes
None	Vocational G., placing handicapped.	No record	24,710	$1.38	54		Yes
None	None	No record	15,366	58¢	66	25	Yes
None	None	No record	55,135	17.7¢	50	100	Yes
None	Assist. destitute; stand. brd. house etc.	No record	27,590	No rec.	90	67	Yes
No acct.	None	No record	No record	No rec.		No rec.	Yes
None	Juvenile labor vocational guidance school registration etc	[4]	[4]	[4]	58		Yes
None	Immigration. voca. guid. place handic.	7 mos. 192,379	7 mos. 33,170	est. 38¢	68	45	Yes
None	None	23,159	13,294	37¢		approx. 40	Yes
None	Voca. guid. by manager	3,029	2,386	$1.67	49	"Very few"	Yes
None	None	2,205	1,936	61¢	74		No
	Immigration voca. guid. etc.	51,997	25,205	35¢	78	39	Yes

[3] For the year 1912. Commissioner gave no figures in 1914 report.
[4] For the year 1913.
[7] For the year 1909–1910.
[8] For the years 1912–1914.

8. Dakota passed an act providing for state employment bureaus in 1913 but no appropriation has as yet been provided.

filled. Since 1908 it has not reached 6 cents, touching the low limit of 4.18 cents in 1909. During that year 38,846 workers were placed.

The national bureau has not collected any figures from which to judge of its effectiveness. The chief of the division in this department writes, March 13, 1915: "Since the work is in the formative stage and much of the work experimental as to detail, statistics bearing on the same would fall short of being illuminating or of practical value just now."

There is a general expression from all sections of the country that the recent business depression has had a decided effect on the results of state employment bureaus during 1914. In many cases the previous steady growth in business has been decidedly retarded.

The history of the public employment bureau in this country has not been a particularly bright one. Nor has it been a long one. We have hardly had sufficient experience in this new line to develop a marked efficiency. We are just beginning to have men who are trained in the work. Then, too, the immediate cause of the bureaus in many states, political rewards did not prophesy a particularly efficient future. The financial backing has been, in almost all cases, insufficient for a useful and growing bureau.

A national system of centralized and coöperating exchanges, towards which we are rapidly working, will form a very efficient machine for keeping our reserve labor supply at its minimum. But the bureaus are merely distributive agents. They gather the information and point out the opportunities. They do not create jobs. They are the first step in the solution of the problem of unemployment, a problem which is rapidly becoming a national question. The facilities afforded by a comprehensive system of exchanges, and the data which they would collect in a few years, would form the basis for the information and regulations looking toward regularization of industries, shifting of help among the seasonable occupations, and the correct treatment of the unemployables—the real solution of the problem.

PUBLIC BUREAUS OF EMPLOYMENT

By Charles B. Barnes,
Director, New York State Bureau of Employment.

The subject of public employment offices just at this time is attracting a great deal of attention. This is in the main due to the large amount of unemployment throughout the United States. Unemployment in this country has gradually reached a chronic condition, through many causes which are not pertinent to discuss here. But just now we are in an acute stage, due to financial depression, the European war, etc.

All sorts of agencies are attempting to solve, or else offering a solution for, this condition. Naturally, public employment offices suggest themselves as a remedy. The present agitation has its good and bad sides. It is well to bring the subject of public employment offices to the fore, but too many people regard them in some vague way as a remedy for an acute situation, without realizing that public employment bureaus are an institution which can only be beneficial through the realization by employers and employees that they are a necessary and integral part of our industrial life. This realization has got to be a matter of growth, and will necessarily be slow. If public employment offices had been generally established in all the states twenty-five years ago, and had been carried forward with a true understanding of their work, they would today have been in a position to point out some remedies for the present situation.

A few of the states have had public employment offices for several years, and at the present time there are nineteen states which have public employment office laws, while in seven other states there are cities which have established municipal bureaus. There has, however, been no coöperation between these different bureaus, and in some of the states having several offices there has been no coöperation between the several branches in the state. In all these states the offices have been handicapped by the lack of appropriations, lack of realization of their true function, and because they have to a large extent been regarded as a political

asset. Only in four states are they under civil service, and in these the best work is being done.

The public generally has rather a low regard for employment offices of all kinds, and too often public employment offices have been regarded merely as places to handle common labor, or else to cater to the unemployable or near-unemployable. With this wrong impression as to their true use and value, appropriations were consequently very low. The same attitude toward them led to the belief that anybody, regardless of character or ability, could run an employment office. For this reason, superintendents who secured their offices in payment for political services, were too often men of limited capacity and with no very high conception of the work to which they were appointed. All this has caused this vital and necessary part of our industrial system to languish and receive little or no attention.

One of the things which indicates a revival of interest in the subject is that the matter is now being considered from a federal standpoint. Already two bills have been introduced in Congress for the establishment of a federal employment bureau. In addition, the United States Industrial Relations Commission issued, about a year ago, a tentative plan for a federal bureau, and in connection with this tentative plan a study was made of the different state employment offices now existing. This led the commission in their first report to emphasize the need of a national bureau of employment in connection with the labor department, which would coöperate with state and municipal employment offices, which would regulate private employment agencies and which would establish clearing houses for industrial information, thus uniting all public employment offices into one national system. The report refers to the imperative necessity of organizing a market for labor on a modern business basis, "So that there will be no vacant jobs and idle workers in the same community at the same time." An attempt has been made to utilize the post offices throughout the country as public employment offices. Only those who know the highly technical character of the work carried on in an employment office will understand how little can be accomplished through the post office as an employment agency.

Before public employment offices can accomplish the best results in this country, the public generally will have to be educated

to their true use and value. The experience of Germany and England has shown how real is the need for a coöperative system of public employment offices covering the entire nation.

There is in this country no organization of the labor market, and very little is known about it. In times of industrial depression all sorts of wild guesses are made as to the number of unemployed in the large cities and there is generally a demand for a "census of the unemployed." This it has always been found impossible to take accurately, and in the end each city falls back upon an estimate and hesitates about what shall be done to relieve the unemployment, because of the lack of accurate information as to the extent and character of it. We are now conceiving the possibility of registering those out of work according to their industry and trade.

The number of casual workers and those who drift about in a constant state of under-employment is greatly increasing. There are many causes for this, and the public employment offices can assist in checking this increase in two or three very definite ways.

Many thousands of dollars are spent in educating the children of the different communities. After receiving this education they are turned out of the schools at any time from their fourteenth to their twentieth year and allowed to hunt their vocation in life without well defined or intelligent direction. The child may turn to its parent, who has very limited knowledge as to the industries of his community or the country at large. If the child turns to its teacher it finds but little more help here, and so in a haphazard fashion it secures a "job." There should be in every community a central point to which the child could turn to learn all about industries, all about opportunities in staple trades and new lines of business, to know which were decaying trades, which were "blind-alley" trades and what vocation was best fitted to its education and temperament. To thus save the child from misdirection would cut off one source of supply to the great stream of casual workers. Public employment offices should also be able to give accurate information to vocational and trade schools as to what should be taught in them to meet the coming needs of the various industries. Another way in which the public employment offices could help to lessen the number of casuals would be in helping to shift workers in seasonal industries from one work to another.

Many trades and industries can be, or are, carried on for part of the year only, and when the workers leave one trade they have no central point where information can be had concerning some other trade in which they could be employed for the rest of the year. Lacking this, they drift about and soon become members of the great body of under-employed.

The under-employed and casual worker is also recruited from the ranks of those who have vainly striven to find work in their own particular trades. Barring the drug habit, there is probably no other thing so depressing to a man as the weary hunt for a job—the being turned away day after day from factory gates and offices. After a few weeks of this sort of thing, men, who under ordinary circumstances would be good and steady workmen, gradually get into such a depressed state that at last when work is found they have become unfitted to do it. Our bread lines contain many men who have gone down under this sort of depressing search.

A man seeking work today finds many avenues through which to obtain it. The most common way is to apply at the actual place of the work. This means tramping the streets of the city or riding to many parts of the community where work is going on. Or the man may answer an ad in the newspaper and find himself in line with many hundreds of other applicants. Or he may insert an ad in some newspaper and go the weary round in answer to the replies. If he is a union man he can apply to the headquarters or to the business agent of his union. If he is a non-union man, or is not opposed to working in an open shop, he can apply to the employment bureau of an employers' association. If he has a family to support and has reached the point of asking charity, he may be referred to the employment office of some charitable association. If he has a little money he may go to a private employment agency. Here he may be charged a registration fee, and if, after some delay, he is finally placed in a position, he will be made to pay anywhere from five to twenty per cent of his first month's earnings. So many varied ways cause a scattering of energies and a loss of time and money, not only to the employee and employer, but to society as a whole. The method is as primitive as the ox-team, and the inefficiency and waste is very great.

To better this method the public employment offices were created. But it must be remembered they do not and cannot

create jobs. They only seek to minimize the number of persons fruitlessly searching for work, and more quickly to bring employer and employee together. It is nevertheless true that as these public offices grow, and more and more cover the field, they in time will (through the information which they are gathering) be able to devise a method—by legislation, if necessary—whereby the worst effects of seasonal and cyclical variations in the labor market can be avoided and labor properly shifted from one part of the country to another, in compliance with a real demand for such shifting. Thereby the number of casual workers will be decreased and year-round employment made less a matter of chance and "luck."

Too much must not be expected from newly established offices. They are as yet in the "little red schoolhouse" period of their existence. It must be remembered, too, that the work in an employment office is of a highly technical character, and that there are at present very few trained workers in this field. One of the benefits of these offices will be the training of a set of workers who eventually will be capable of dealing adequately with the question of unemployment—workers who come in contact with the needs of industry on the one hand and the needs of applicants for positions on the other. It is not every man, even though he may be well trained in other lines, who can get from an employer the full description of the kind of worker wanted, and who can take that order in hand and select from the individuals in the line in front of him the one who is best fitted to fill all the demands of that position. It takes, too, a very tactful person to question the sometimes reluctant applicant for work and get from him all the information about himself necessary to know before he can be fitted into the position. Then further, public employment offices have quite a task before them in establishing themselves in the confidence of large employers of labor, and especially employers of more or less skilled workers. So general is the belief that public employment offices only handle the poorer grades of labor that most employers refuse to seek their aid. This feeling, of course, brings a disinclination on the part of efficient workers to patronize these offices.

In connection with the popular misconception of public employment offices, it might be well to call attention to the fact that the word "free" should be eliminated from all references to them. It is true their services are free, and so also are the services of the

public school. We have, however, long since outgrown the use of the term "free" in connection with the public schools. Why should we still retain it in referring to the public employment offices, and thus in an indirect way give them the odium of charity? Further, it is well to remember that these offices are just as important as the public school, and should be conducted by people with just as high qualifications as to character, ability and intelligence as are required of those who teach in our high schools and colleges.

There is now considerable discussion among those interested in public affairs concerning the regularization of industry and the establishing of unemployment insurance. Through the study of industry, which the public employment offices will have to make while carrying on their daily work, information will be gathered of great value to those who seek to regularize industry and to minimize the amount of seasonal work. If unemployment insurance is to be established it can only be worked through a coöperating system of public employment offices.

During the year 1914, the writer made a study of the public employment offices throughout the United States for the United States Industrial Relations Commission. For the past few months he has held the position of director of the state bureau of employment of the state of New York. This experience leads to the making of some suggestions to those states about to establish public employment offices, or to those desiring to improve offices already in existence.

In the first place, an adequate law will be necessary which will not enter too much into details, but which will specify only general principles, leaving details to be worked out by those placed in charge of the bureau. Such a law should call for flexible salaries, so that all employees should have the incentive of an increase in wages. Civil service should be required for all the office employees from top to bottom. Present civil service regulations and methods are, however, in most states too formal and inflexible. An ideal examination for public employment office workers should above all things take into consideration the importance of personality in selecting superintendents and other helpers. Dealing with all sorts of people requires a sympathy and understanding and a tact which is not possessed by many otherwise able persons. To insure the selection of properly qualified workers,

the director, whether of state or national bureaus, should always be a member of the examining board. Strict impartiality should be maintained as between employers and employees, especially during strikes and labor disturbances. The offices should be so conducted that neither side would have a dominating influence. Their success will depend on the friendship of employers and of organized labor, and both should be made to understand that the public employment office is a common meeting ground. It would be well for all the offices to have advisory committees. These committees should have equal representation from the ranks of organized labor and from the organizations of employers. It might also be well to have the general public represented through some of its elected officials. These committees, in addition to their main function of securing impartiality and the proper running of the offices, should also be instrumental in helping to educate the general public into a higher regard for employment offices.

The establishing of public employment offices is a part of the duty of the state (and in time it may become the duty of the federal government). At the same time offices can be better conducted if there is coöperation on the part of the cities in which such offices are located. Where the cities have a financial interest in the public offices, there is more likelihood of a hearty local interest in their success. The different offices in any one state should have a uniform system of records and a uniform system of reporting to some central bureau. The amount and kind of statistics furnished by each office will have largely to depend upon the number of workers alloted to it, and this number will, of course, depend upon the amount appropriated for the entire bureau. At the very least, however, there should be a daily report from each office of the number of applicants for work, the number of offers of positions received from employers, the number of applicants referred to positions, and the number of notifications received that positions were actually filled.

All offices should have at least two main divisions, one for men and one for women. Where the number of office employees justifies it, there should be a further division into skilled and unskilled, and as the office grows larger there should be still further division into mechanical, clerical, etc.

All budgets for employment offices should contain an item for

advertising. The amount and kind will have to be decided by each superintendent. Private agencies find it profitable to advertise and some of the best public offices advertise regularly in the daily newspapers. Then, too, nearly every public office has an opportunity to get much free advertising. Live employment offices are always a good source of news from the daily newspaper standpoint, and advantage should be taken of this to keep the office well and favorably known. No office should content itself with sending out a few cards or circulars, which are too often thrown into the waste basket.

In selecting superintendents, care should be taken to secure men of intelligence and character, men active and tactful.. It should be the duty of the superintendent of each office to set aside a certain number of hours a day or a certain number of days a week in which to visit all the industries of his community, so as to get acquainted with the kind of workers demanded in the different trades. When an office becomes large enough the superintendent should be practically free from all the detail work of the office, and should spend most of his time out in the field becoming thoroughly acquainted with the proprietors of the various industries and foremen in charge of the workers. He should make them well acquainted with his office and seek to show them what it could do for both employer and employee. By thus getting fully acquainted with all the work of his community the superintendent would come to know the seasonal and varying demands of the labor market in his jurisdiction, and could prepare his office to meet impending changes in this labor market. It should be his duty to see that his subordinates properly fill the orders which he secures from employers and to know something about the way in which employers treat their employees. By thus taking a vital interest not only in the workers sent to positions, but also in the needs of employers, he would in time win the confidence and good will of both.

The law establishing the bureau of employment in the state of New York was approved in April, 1914. The director of the bureau was not appointed until the latter part of that year. The first office was established in Brooklyn on January 4, 1915. Since that time, at intervals of a few weeks, offices have been established in Buffalo, Rochester, Syracuse and Albany. Others will be

established from time to time. The offices have, of course, been established too short a time to speak about the effect of their workings. It can, however, be said that the offices outside of Brooklyn are placing a large number of farm hands. Also, that all of the offices are handling a large amount of skilled help, much larger than might have been anticipated considering that the general idea concerning public employment offices is that they are designed only for common labor. If domestics are excluded from those placed in positions, more than 60 per cent of the places filled would belong in the class known as skilled labor. Up to this time (April 1) all the offices throughout the state have registered over 16,000 applicants for work, and have received calls from employers for over 3,400 workers. Reports have been so far received that over 1,500 of these workers were placed in positions. It must be understood that in making up these statistics no place is reported filled unless actual information is secured to that effect. A considerable number of places are in all probability filled which cannot be reported on for lack of definite information.

No printed bulletins concerning the work of the offices have yet been issued, but multigraphed bulletins have been issued at the end of each month, giving a detailed statement of the work of the offices as copy for the daily newspapers. In connection with the bureau of statistics the bureau of employment is preparing to issue a monthly labor bulletin. This bulletin will be made up from information from several sources. It will include the data from the public employment offices, data from private employment agencies, data from a certain percentage of employers in each industry in the state, the reports from labor organizations and the reports of building permits issued in each city in the state.

CASUAL AND CHRONIC UNEMPLOYMENT

By Morris Llewellyn Cooke,

Director, Department of Public Works, Philadelphia.

"Unemployment." In the one word is summed up a problem of tremendous importance to any industrial city. It is moreover a problem to be faced by our generation. No other obstacle to our growth as an industrial nation is less likely, however, to be successfully combated unless our leaders—industrial, educational and religious—keep our attention focused upon it. On the other hand, it can be confidently asserted that there is no one of the unfortunate conditions of our industrial life more possible of control than this one, if manufacturers, educators, the laboring class, and others interested will so view it.

There should be excluded from the present discussion the type of unemployment resulting from "hard times," changes in the tariff, or world-wide fluctuations in trade. We have in mind rather what might be called chronic unemployment and casual employment. Even during good times, and of course to a greater degree during average and poor times, there is a large amount of actual unemployment of types and due to causes that are almost ignored in popular discussions of the subject. It is to these phases of the problem that special attention should be directed.

There has of late been much talk about employment bureaus, private, municipal and state, and even national. There is an important field for such agencies if they can be organized in harmony with democratic ideals. They are at best, however, only mitigating agencies and cover but a small part of the whole field. Such agencies will be principally of use as emergency measures during those times when conditions of trade are upset.

We in the United States have progressed far enough along the path of civilization to make it advisable in discussing such problems as this to put the emphasis on what happens when conditions are normal. We have great sympathy for those who are thrown out of employment by changes in national policy or by the invention of new machines, or by other unusual causes over which neither

the worker nor the employer has much control. The object of this paper, however, is to call attention to the fact that the great burden of unemployment under which this and every other industrial center groans is due rather to the blindness of individuals, to tradition, to lack of organization, and other causes, which, if studied, can very largely be removed. Such a study should enlist the interest of the employing class as well as those they employ. We are too apt to look upon anything like the unemployment problem that is fundamentally troublesome in industrial conditions as due to what are known in insurance circles as "Acts of God." We accept such conditions as having been imposed in the general scheme of things and not to be successfully combated. We do not realize how largely we human beings are responsible for what is wrong.

There has been going on in this country, for a number of years past, experimental work in this field, which would indicate that practically all of the burdensome chronic unemployment can be prevented if we make up our minds we are going to do it. Let me give just a few examples of the kind of unemployment I have in mind:

Molly Brown is engaged on piece work and has been in the habit of making eight dollars a week. If during the first four days of the week she is given what are known as "fat jobs" and has already earned her eight dollars by Thursday night, the forewoman sees to it that she gets little or no work on Friday or Saturday. Why? Because if Molly should earn nine dollars or perhaps ten dollars at piece rate this week, the forewoman is afraid that she will begin to rate herself as a nine dollar or ten-dollar girl and that would be troublesome. The net result from an economic standpoint is two days of unemployment.

Again, in certain textile mills, it is the practice to carry on the pay roll a larger number of men than can be given work at any given time. This is done usually from two motives. The manufacturer wants to be sure of his help when he needs them for getting out orders. On the other hand, he has a kindly interest in his men and feels that to keep a certain number of his men on part time is better than actually to discharge some of them. In both attitudes it seems to me the manufacturer is mistaken. Through lowering the average net pay of his employees, he reduces the efficiency of his plant. On the other hand he demoralizes the workers through

training them to casual or interrupted employment. This practice is so general in some communities that a large percentage of the workers are incapable of continued employment. After they have been engaged for a certain number of weeks, or at most, months, they have to lay off. They cannot stand the strain of even a relatively short work day if continued week after week. Certain other manufacturers who do not like the idea of laying men off for whole days at a time or even one day, accomplish the same result by shutting down one or more departments early in the afternoon. Of course, the net result is the same. It would be a good deal better both for the manufacturer and his men if the number of employees should be kept chronically below rather than above the number to whom full time can be paid.

Another cause of unemployment is what seems like a wrong conception of the relations between selling and manufacturing. During the last twenty years the importance of selling as compared to manufacturing has been apparently greatly exaggerated. The selling end usually controls. The thought seems to be that the operations of the selling staff at any one time are limited. But there goes with this the assumption that whatever the selling staff can accomplish must be met by the manufacturing end of the business and this whether it involves cutting the output in half or doubling it. It may mean doubling the number of employees engaged on manufacturing and making them work time and half time, or it may mean discharging half the employees. The attitude should be that both the selling and manufacturing arms of a business should have like opportunities but like responsibilities. The selling force should be so organized that they can keep the manufacturing side going, so that day to day, week to week, and month to month, fluctuations in the number of employees do not occur. Obviously, this is not a problem in which a 100 per cent result can be obtained, but in many establishments, with which I am familiar, overtime has been practically cut out and rush seasons have disappeared.

In one shoe concern they have a special department which during dull seasons makes standard lines at a somehwat reduced cost. These goods are disposed of through special selling agencies and are manufactured only in order to equalize the load, and to keep men employed when otherwise they would be laid off. This

same concern has six men in the field in different parts of the world studying and trying to anticipate as far ahead as possible the demands of the market. These men do not sell. They simply observe trade conditions in order to get the earliest possible notice of either a heightened or lowered, or changed demand. This reduces the amount of unnecessary manufacturing. It notifies employers long in advance of forces operating toward a change in the number of employees in any department or in the establishment as a whole. It frequently happens that these forces when anticipated can be counteracted. It is almost impossible to conceive that under good management there is any necessity for such violent changes in the number of employees as we saw in Philadelphia during the winter of 1913–1914. Some years ago in Philadelphia one concern operating in a standard line had approximately 19,000 employees on January 1 and between 8,000 and 9,000 employees working part time six weeks later. Lack of organization could be the only possible excuse for such a tragedy. It would be indeed a wonderful industrial community that could absorb men laid off at any such rate as this.

The study of this problem in the shoe concern above referred to has been going on for ten years. The concern had an output last year of considerably over $10,000,000 and is very successful. While in the shoe trade generally eight to ten weeks a year is considered a conservative estimate of the period of unemployment, this concern has reduced it, through its studies, to less than five per cent, which includes the regular vacation period allowed every employee.

Another cause of these more insidious types of unemployment is the fact that most workers know how to do but one thing. When I served my apprenticeship as a machinist, I was associated with men who were boring mill hands, lathe hands, vise hands, or something else. In other words, they secured their livelihood by operating practically one type of machine. Obviously, when there was no work for this particular type of machine they were laid off. In some of the industries with which I have been associated since that time, there has been created the organization for teaching people how to do as many things as they are capable of learning. If work of one kind runs out, they can be shifted on to something else. Notwithstanding the general impression to the contrary,

there is no reason why this scheme cannot be practiced as a part of the shop procedure which the labor unions hold is the best adapted to promote the prosperity of the worker. There must be the broadest possible assurance that this will never be done in order to cut wages. Good faith in this as in every other matter is at the root of high efficiency. In one establishment that I know, owing to this coaching in doing more than one thing, none of the women employees was laid off for an hour during the year 1913. The entire force was kept engaged. There had accompanied this change an average increase in wages among the workers affected of about twenty per cent. One concern which does not believe in welfare work employs a factory nurse. Her work costs $1.69 per employee per year. Her main job is to keep the workers well so that they can make full time. Will any one question that she is a good "buy"? I know three small concerns in a small town who jointly employ a nurse.

Every country in the world is discussing the minimum wage. Invariably the discussion hinges on the proper amount to be paid a man or a woman for a week's service. I want to submit that it will not be many years before this will give way to a discussion as to what constitutes a proper annual compensation for men and women. After all, what I am interested in is my annual income. This is the vital thing with my fellow-workers in every grade. You can give a man or woman $20 a week, but if you employ him only six months in the year and he is unable to secure employment from anybody else for the remainder of the year, his actual weekly income is $10. This is an extreme case but everyone can suggest abuses in his own experience which illustrate the principle. The manager of a concern employing 800 employees told me recently that he had given orders that he should be shown at the end of each quarter the average weekly wage for the entire quarter of every employee, and he expects to see the same thing at the end of the year. This employer feels that his employees are to be permanent employees. They are members of his industrial family, in whose prosperity he is vitally interested. He has reached the conclusion inevitable under scientific management that if he is going to be prosperous, he must pay high wages and have high-class people working for him. He must make quite an investment in educating every such employee. It is to this employer's interest to hold this

asset in his own employ. It is to the interest of the worker so educated to stay where he can make the most of his accomplishments. On the other hand, I have before me the case of an employer who retires his entire staff once in every two years. Efficient management under such conditions is impossible. The lower the class of labor the less the importance which seems to attach to permanence and continuity of employment.

To sum it up, it would be a great and good thing if some citizen or group of citizens would establish a university chair or chairs on unemployment, the function of which would be to organize a study of the causes of both the chronic and the exceptional types of unemployment and make suggestions to our manufacturers and workers as to the best means of reducing it.

Inasmuch as the problem of unemployment is absolutely tied up to that of efficiency, and interwoven with it, it is one that will have to be solved. Those industrial communities that do not bear their part in its solution will inevitably suffer the consequences. A successful outcome will only be possible if the work is undertaken as a joint responsibility of both the employers and their men. Both sides must bring to its solution the broadest spirit of sympathy and zeal.

PROFIT SHARING AS AN INFLUENCE IN INDUSTRIAL RELATIONS

By A. E. Pfahler,
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The sharing of profits with employees, whether in the form of a bonus for super-efficiency, distribution of net gains in proportion to wages and salaries, or dividends upon shares of capital stock, has long since passed the theoretical and experimental stage and has already played a conspicuous part in numerous colossal industrial successes, and whether by accident, or which is more likely the case, as a natural consequence, a greater degree of harmony and contentment exist in establishments where it is to be found than in others where such practices have not been inaugurated.

Of the many forms of profit sharing now in force the most common and least complicated is the sale of shares of capital stock to employees who have been in the service for a certain length of time, and whose record shows loyalty to and interest in the enterprise; or the setting aside each year, when earned, a certain proportion of the net profits to be distributed to the workers who have complied with fixed requirements as to term of service and coöperative spirit, in ratio as their respective wages bear to the whole payroll.

The first method, except in the case of companies having shares of the par value of $1.00 or $5.00 (and these low par values are becoming popular now-a-days because they facilitate wide distribution), necessitates an arrangement on the part of the company to sell the shares on the partial payment plan taking the obligation, interest-bearing of course, of the purchaser and crediting all dividends and payments until the whole sum shall have been paid, at which time the shares may be transferred to the name of the employee. In the case of a company whose shares are not listed upon any stock market the company must stand ready to purchase back the shares when offered.

The second method requires only the fixing of some percentage which seems fair to all and then applying it to each year's net

profits to determine the amount for distribution. Usually such distributions are made just prior to the Christmas holidays.

In both plans it is most important that the employees be obliged to serve the company for a period of months or years and with a proven degree of faithfulness before being permitted to participate in any profit-sharing arrangement.

Is profit sharing a preventive for all conflict as between the employer and the employed?

Will profit sharing ensure justice as between the worker and the works management?

Can the evil of unemployment be mitigated by profit sharing?

These and many other questions arise in the minds of those who have given little thought to the subject and have not until recently noticed the rapidity with which sentiment is changing in this field.

If the division of gain or the distribution of benefits, and that alone, is depended upon to bring an affirmative answer to these questions, disappointment awaits whomsoever expects so much, for that would be too great an accomplishment for which to hope; but if coupled with other logical, reasonable, do-unto-others-as-you would-be-done-by relations, great progress can be, in fact in many instances has been, made toward a condition of peace, contentment and more lasting and universal prosperity.

It would be incorrect and misleading to say that all establishments, where profit sharing had been adopted, were successful to a greater extent than their neighbors where it had not; for like a piece of machinery, it, to be efficient, is the result of scientific observation and must be thoroughly understood and properly applied. The executives who call their employees together some January first and announce the new order of things, never again referring to it, expecting the seed to sprout unwatered and the crop to mature uncultivated, are sorely disappointed and firmly convinced of what they believe to be the fallacy of a theoretical scheme to take from them hard-earned profits giving nothing of value in return. As a matter of fact the trouble lies in their failure to properly apply the principle.

The warden of one of our large penitentiaries says that fewer mechanics come under his care than any other class of society; and that of the criminals who are paroled or dismissed, those who dur-

ing their confinement have learned a trade seldom are returned to jail. "I am positive," said he, "that were every boy able to find the tool in which he could become interested and with which he would love to work, there would be a smaller number of inmates in our prisons."

This testimony from one who knows from long experience strengthens the belief that the desire to do wrong is not basic in the minds of the majority of workers, but rather the result of failure to be guided into the right path of usefulness at the start, and suggests the thought that if love of a tool could be coupled with the desire for accomplishment of profitable work, a great economic force would be kindled; and from thinking of how little work would win the daily wage, men would turn to the thought of how to so increase the productivity of their efforts that the general gain might be greater and their share thereof be larger.

In works where wages and compensations are fixed arbitrarily with no tangible recognition given to him who displays the greater intelligence or exerts the greater effort, and where no attempt is made to compel an understanding that as the success of the whole increases that of the individual worker must as well, and where as the business grows and profits increase the only evidence which meets the eye of the employee is the added display of wealth on the part of the owner and the lengthening of his vacations; in such places no one but the "Old Man" has a vital interest beyond the contents of the pay envelope at the end of the week, and the business is almost certain to dwindle after he passes on.

A great deal of the strife and conflict which arises between employer and employee is caused by a lack of frankness on the part of the employer. They seem to be obsessed with the idea that they must keep all knowledge of the progress of affairs from the working force, and that best relations can be obtained if the men feel that the enterprise is being run at a loss. No more stupid and ridiculous theory could be imagined, and profit sharing will put an end to it because of the feeling of partnership which is immediately engendered. Each realizes at once that the other has a common interest and that if a difference of opinion exists it must be an honest one; each knows that since both are working toward profit making, both have the same ultimate end and are actuated by the same fundamental desires. For these reasons a greater spirit of justice and

fairness will maintain in those businesses where the employees are partners.

Conflicts and discontent always arise out of a feeling that rights have been usurped or rewards for achievement are inadequate; the logical effect of profit sharing is to eradicate all such ideas and substitute therefor, feelings of loyalty and ownership.

The evil of unemployment in so far as it is caused by conflict between the employer and the employed can and will be mitigated by fair treatment (a proper form of profit sharing is the very quintessence of fairness) but that the distribution of gains among the workers can prevent the occasional disparity between supply and demand and the attendant fluctuation in the amount of work to be done in the world, is impossible of belief.

Some of the arguments against profit sharing are these:

> We do not care to make stockholders of our employees because as such they would have the right to exact a statement of profits and might use the information as a basis for demands that wages be increased.
>
> The plan would be all right if every year was a prosperous one and the amount to be divided remained the same or increased; but that not being possible, discontent would certainly arise and trouble result in the lean years.
>
> As participants in the profits, workers would certainly feel at liberty to criticise methods of conducting the enterprise.

The one sweeping answer to all of these objections is that the plan requires, for its greatest benefit, the drawing together into a close working whole of all of the elements of an industry, encouraging them to coöperate to the fullest extent, and no management which does not believe that such a condition will make for greater benefits is tuned in harmony with the plan or can make it succeed.

The knowledge of what profits have been made in the case of companies whose shares are not listed on a stock exchange and which are not therefore obliged to publish them, should not have any different effect than upon those who, because of listing their shares, are obliged to make the annual results public. Rather than detrimental it is quite likely that the results would be beneficial, for the "whole world loves a winner" and a good job with a successful concern is always coveted by desirable workmen. Greater opportunities for advancement lie with the profit-earning organizations, a powerful argument. As for the likelihood that higher wages would be demanded, the working force will be receiving higher wages automatically in their share of the gains.

Since the regular wages will have been paid during the lean years when no profits are made, the worker will be no worse off than if the plan had never been put into effect, and no serious discontent is likely to evidence itself, because the conditions which have brought about the decrease in profits will have been manifest long before the actual results are felt, and the omission of dividends will never come as an unexpected shock. The wage-earner has ever been obliged to adjust himself to varying incomes and is far better able so to do than are his superior officers. From the beginning of enterprise he has been laid off when times were bad, and obliged to work on short time when business was dull. Some would complain, of course, but the great majority would understand; and the most that they might ask would be the repurchase of their shares or a loan upon them as collateral to tide them over the period of inactivity, and this the management must stand ready to grant.

Rather than object to a desire on the part of the working force to offer suggestions, the wise management will foster and encourage such a feeling for in it lies the possibility of greater profit and a certainty of increased interest and enthusiasm among the men. The management of an urban trolley system which shared a certain portion of its earnings with its men, went so far as to appoint auditors from the working force to vouch for the correctness of the calculations, and no evil resulted therefrom.

Granting that some form of profit sharing, properly applied, will bring an affirmative answer to the opening questions of this article, we are then confronted with these thoughts:

Why is it certain or even probable that the profit-sharer will be a greater profit-producer than one whose only reward is his wage?

Under what conditions can it be started and how carried out to make it a success and ensure a greater degree of contentment, honesty and productiveness than existed prior to its adoption?

None but the hermit, the recluse who lives apart from other human beings, makes everything that he wears and uses, seeks or grows his own food, is wholly independent of his fellow men. Just so soon as people gather together in colonies and communities they become reliant the one upon the other and must immediately be mindful of, and influenced by, the rights of all of their fellows. The

hermit is a selfish creature with no thought but of his own comfort and livelihood; the dweller in a community, a broader-visioned being who must needs think of his neighbors in planning his own course of action and habits of life. Everyone will grant that little progress could be made in the world were each member of society to act in total disregard of the rights and privileges of every other member. Factory life is no different from that outside, in that the wage-earner without interest in, or consideration of, the general procedure of the process stands in the way of progress. Unless every employee is mindful of the general welfare, unless he appreciates the effect of his effort upon the fortunes of all, unless he has a greater interest than that of a wage for the performance of a certain operation, he will not be actuated by those broadening influences so much to be desired.

How different is the point of view of the worker who shares in the final profit; immediately his mind refuses to be limited to the narrow confines of his own task and his thoughts reach out toward the finished work, he can see and keenly feel the effect of wasted time and material upon the year's results, part of which belong to him.

An impressive example of this is the experience of a concern selling its product in one of our large cities. The selling organization consisted of salesmen, clerical help, stenographers, each unit working under the direction of the manager and each individual receiving a fixed wage, none particularly interested in the results of the others' work. The salesmen, though friendly, would not take much time to help each other because it was not to their financial interest to do so. The stenographers came and went on the stroke of the hour, the work not finished at the end of the day went over unless the one who desired it and realized its importance to that part of the work for which he was responsible was present to insist that it be finished. The clerks did their tasks in the manner most enjoyable to themselves without much regard to what others thought or how they were affected. And so matters drifted until a strong desire to increase the volume of sales and profits caused the manager to devise a plan which he outlined somewhat as follows:

Our sales in this city are not as great as I think that they should be and I want them increased. You are receiving certain salaries for producing the amount of business we now do and we do not intend to ask that the increased effort need-

ful to enlarge our volume go unrewarded but propose that the wage of each be increased in proportion to the growth of the business. Under this arrangement it is the duty of each to his fellow, to exert his greatest and most efficient effort and to help each other whenever and however possible for the good of the whole since all will share in the final result.

The result was that each employee became vitally interested and concerned in the work of all of the others. Important letters went out promptly even if the stenographers had to stay after hours; clerks discovered that it was a pleasure to humor the whims of desirable customers and to expediate the work of the salesmen by saving their time in all ways possible; salesmen helped each other to close hard contracts fully realizing that in so doing they were helping themselves. The whole work became intensive and maximum results were accomplished through the exertion of maximum intelligent effort.

It is a common error to believe that all workers are devoid of conscience, have no interest beyond their wage and are incapable of being aroused to a sense of pride in their employer and the goods which their efforts produce. That such a state of mind does exist in far too many establishments cannot be truthfully denied, but that it is due to a lack of educational work on the part of the employer is absolutely certain. Never was there a truer axiom than, "like master, like man."

And now we come to the most important phase of profit sharing, the conditions under which it can be successfully attempted and how it must be carried out to ensure advantageous results.

In the first place, the management must be enthused with and thoroughly convinced of its desirability; they must be ready and willing to give away a portion of the profits in order that the business may grow in earning capacity and the employees in working efficiency. They must study the psychological effects to be brought about and understand the cause and result. They must learn these things perfectly in order that they may be able to impart the knowledge to their employees, for it is from careful education that the greatest benefits will be derived. The most important, and an absolutely essential part of the profit-sharing system, is the educational side, the forming of the operative's mind to appreciate and want it, the training of his thought to realize that what helps the business will help him, the combating of the idea that any

embarrassment, misfortune or disaster to the enterprise can bring everlasting benefit to even a small minority of the working force.

Time was, and only a short while ago, when business was not considered to be a science, when training of workmen to do their tasks in accordance with efficient formulæ and of salesmen to apply logic to their interview, was unthought of; fire drills for all employees a thing undreamt. And right here, why, if the majority of workers are devoid of interest in the welfare of the establishments in which they work, are they willing to form into fire brigades, act quickly, efficiently, frequently risking their lives that the property may be saved from destruction? Because some say, "the destruction of the property would mean the loss of a job and the wage it brings." Would not the same result follow the loss of profits?

In nine hundred and ninety-nine cases out of a thousand the most generous and attractive profit-sharing plan imaginable if distributed in bulletin form and allowed to stand unchampioned and unexplained will fail utterly. Why? For the very good reason that the majority of people do not recognize opportunity when it presents itself and cannot reason out for themselves the advantages which they will derive from such a plan.

For profit sharing to be a success, those who are to be made a part of the plan must be educated in its advantages; they must be shown how they are to benefit, every rule and regulation has some bearing upon profits and this fact must be pointed out and made clear. Their attention must be incessantly attracted to the profit-making side of the business with which they are associated, they must be taught to measure every movement, every process of which they are a part by the amount of profit it can be made to yield or the amount of loss it can be made to save. They must be made to realize that time and effort, as well as money and materials, are valuable and that to waste or misuse them is to decrease earnings. They must be shown the close relationship between the wasted moment in the shop or office, or on the road, and the music lesson of the daughter or the bicycle for the son. They must be argued with in terms which they quickly and easily understand and the value of which they can readily appreciate and instantly translate into the needs and desires of their everyday lives.

Some say that operatives oppose such plans because they are

contrary to the dictates of organized labor; perhaps that is so, but very few men who see and understand and can take advantage of an opportunity which is certain to better their position in the world and make the lives of their families more pleasant fail to avail themselves thereof. Profit sharing is such an opportunity for the worker, but it is the task of the employer to drive the idea home.

Just as the average man takes better care of the house which he owns than he does of the one he rents, and treats his own horse with more consideration than he does the one he hires, so will the profit-sharer, the part-owner in the business and its success, treat his employer with greater fairness because of that very feeling of ownership and responsibility. The feeling of ownership engenders a sense of greater interest which quickly minimizes the need for close critical supervision; it acts like the honor system among college students.

Warden Osborne, in his plea for reform in prison management insists that the only way to fit the transgressor for a position of liberty in society is to educate him in the advantages of doing right and to appeal strongly to that sentiment which exists in every human being, a love of his fellow man and a desire to do the square thing by all who treat him fairly. The same is true of profit sharing and he who will take the time and trouble to direct the thoughts of his employees toward the making of profits will find infinite satisfaction in the increased loyalty and prosperity of those about him.

SOME THOUGHTS ON INDUSTRIAL UNREST[1]

By Daniel Guggenheim,
New York City.

Chiefly because of the advancing cost of living, but largely at the same time on account of the ever growing inequality in the division of the wealth of the nation, there has been for many years a steady increase of discontent among the laboring people of the United States. This discontent is bound to keep on growing unless radical steps are taken to alleviate the present condition of the laboring classes. A great many things have been done during the past few years to benefit the laboring man but more must be done, and more will be done, because employers of labor and managers of business are commencing to realize to a greater extent than ever before the nature of their obligations toward their toiling employees. Just as the business man of today no longer believes that in order to get on in business he must roll his competitor in the dust, so no longer does he follow the practice of grinding his laborers down, paying them the lowest wages possible and utilizing them for his own interests and nothing beyond that.

Whatever may be the temporary expedients adopted to tide over present difficulties with which the laboring population is confronted, the ultimate solution of the entire labor problem must come through governmental action after careful and nonpartisan scientific study. Private philanthropy has done a great deal toward reducing industrial discontent. The people could not live that are not employed if it were not for the philanthropic work that is now being carried on. But no matter how much is done, enough is never done because the people themselves do not realize what the situation is and there are so many thousands of people who do not like to part with the money they have made, money which often they do not need and which is of no advantage to them. Furthermore, private philanthropy is confronted always by two great obstacles. It has a tendency to pauperize the people whom it is

[1] This article is based on the author's testimony before the Industrial Relations Commission.

intended to benefit and it cannot reach many people who are deserving of help because of their aversion toward accepting charity. These obstacles can be surmounted only through state action. Unemployment, sickness, old age and similar problems of labor can be solved only through some system of social insurance managed and applied by state authority. If a man is out of employment it is the duty of the state through some agency to help him obtain work. If a man is physically unfit for labor either on account of injuries, sickness, or age, provision should be made by the state for his care.

Our industrial organization must be democratized. It must be transformed so that the laborer himself may have a voice in the determination of all the conditions by which his interests are affected, the length of his working hours, the amount of his wages, and the surroundings amid which he labors.

As indicated before, the attainment of industrial democracy must come in the main through scientific legislation. Through the action of the federal and state governments, employers and laborers must be brought together by a system of laws in the making of which all members of each class shall have an opportunity to participate. A great deal has been done in the way of legislation in this country but we are still years behind many foreign countries in providing for the welfare of workmen. Although many people are of the opinion that too much legislation is being enacted, I do not agree with that idea, nor do I think that we have begun to legislate to the extent that we shall in the future for the welfare of the workmen. I think the difference between the rich man and the poor man is very much too great, and it is only by taking steps to bridge the gulf that exists between them that we shall be able to get away from the unrest now prevailing among the working classes.

An important feature of the industrial democracy should be the establishment of a system through which the laborers may be permitted to share in the profits of industry. It should be provided, however, that the share due the laboring man may be given him in bulk at the end of a certain period and deposited in some bank or savings institution. The laborer usually does not know how to save and if he gets his money by the week he spends it; his expenses constantly keeping pace with his receipts. A few men learn how to save but it is a difficult matter for a poor man to learn.

Therefore, if he has an extra bonus at the end of a certain period, no matter how small it is, it should be deposited in bulk at some savings bank. As soon as a man has something of his own which he puts aside he feels differently, having acquired the pride of ownership and the knowledge of how to save. The cultivation of thrift will be of benefit not only to the individuals who save but to the people at large.

Industrial reforms can be brought about only by collective action and the first step toward securing the legislation necessary to the establishment of industrial democracy must be the organization of the workers who are to be benefited. The fact must not be overlooked that we have at the present time good organizations and bad organizations among laborers, just as we have "good trusts" and "bad trusts." The quality of leadership decides the quality of the organization. But good labor organizations, of which we have a great many in this country, can get together, analyze their difficulties and dispose of them. Such organizations deserve the fullest measure of coöperation from all employers, and it is through their united action that proper laws may be passed for the improvement of the economic condition of the people. We have already made a start in this country toward the establishment of industrial democracy through the enactment of laws regulating the hours of labor, laws fixing compensation for injuries, and laws regulating the conditions of employment. Progress in the future will be more rapid than in the past. With a proper organization of the forces of labor and capital and the cultivation of a mutual regard for the rights and obligations of both it will be possible to bring about any desirable change in our industrial system.

THE NEW GOVERNMENT REGULATION OF BUSINESS

By James T. Young,

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Shall the new industrial expansion be helped or blocked by our public policy of regulation?

Government is now a silent partner in every business. The great weight and influence of this member of the firm can be thrown either for or against the concern. There are certain marked and definite changes in our policy which show that, all gloomy prophecies to the contrary, our regulative system is gradually unfolding along constructive lines and that in the era which we are now entering, the reasonable interests and demands of both *investor* and *consumer* may be realized. The most noteworthy of these changes are:

1. The turning of government attention and effort from prohibitive litigation towards regulation by federal commissions and administrative bodies.

2. The distinction in the courts between combines which are large and those which are guilty of crooked practices in competition —the dissolution of these latter, not because they are combines, but because their methods are illicit.

3. Our states have now almost universally grasped the public service commission idea and are abandoning attempts to regulate by legislative enactment covering the details of business.

4. Notable progress is being made in the effort to hasten final decisions by all authorities, both commissions and courts, of disputed points in regulative law. We are trying to give to both sides, the producer and the customer, the advantages of early decisions without delay.

5. We are just awakening to the fairly important fact that federal rather than state regulation of business is the only safe and effective plan for the future. All the most essential points of national regulation must be placed in national authorities. Let us consider the advantages which these changes bring to the American productive machinery.

1. Commission regulation is supplanting that of the courts.

Why is this a step forward? No one can have contemplated the long array of judicial decisions under our anti-trust laws without feeling that we were in some dim sense struggling against the human tendency to coöperate by team work, and that sooner or later our courts must find an interpretation of the law, or our legislators must enact a new series of statutes which would recognize this fundamental human tendency. One of the greatest misfortunes that has befallen the anti-trust campaign has been that the monopolist, the price manipulator, the trade destroyer and the commercial pirate have been able to escape when prosecuted, on the plea that the law was forbidding an economic growth. It would be highly interesting and serviceable but probably illegal under the libel laws to point out numerous recent instances in which business piracies of this kind have successfully escaped punishment because either judge or jury opened their minds to the plea that the anti-trust laws were uneconomic. Because of this feeling the small competitor has been destroyed with impunity and the consumer has been mulcted of hundreds of millions of dollars without redress in the courts. Even the mighty machinery of the federal government itself when set in motion by an injunction has failed to prevent a new lining up of the enjoined combines. The criminal prosecution and the injunction have been a disappointment to us. They are effective only against the little man. Their influence and value are in inverse proportion to the size of the combine and its power for destruction. Yet they have had a marked effect in unsettling business and raising doubts and uncertainties in the public mind. While not protecting the consumer, they have greatly injured the investor. We need some *permissive* authority, some machinery which will hasten, clarify and make definite the settlement of fixed principles of regulation—some plan which will offer a more continuous and constant system of control. The Sherman act has in part succeeded and despite all criticisms it is still a strong bulwark of protection to the consumer and small producer in many fields, but either the law itself or its administration has failed in one important respect—it has thrown the entire burden of overseeing and superintending its enforcement upon the courts. The courts are not administrative supervisory bodies, nor can they ever become such. They are not constantly in session. Their calendars are more or less fixed. Their procedure is likewise more rigid than that of an administrative

body. They have not the facilities for investigation, research and specialized study of the field of regulative law. In a word, they are not administrative and cannot be made so without overturning their essential judicial functions. When a court hears a criminal prosecution for violation of the anti-trust acts, and sentences or acquits the accused, its work is done. When it grants or refuses an injunction to prevent further violation of such laws, it has completed its function. It may later investigate to see if the injunction has been violated, it may shorten the sentence of the convicted, but it does not and cannot regulate from month to month. Nor can it issue general rules to apply and enforce a law as is constantly done by an administrative body. Yet it is only this constant and continuous type of regulation which allows or permits, revises, corrects, expands, interprets and enforces, that we can safely use in our present conditions of business. Can we imagine the courts of the United States regulating our railway systems or determining in the many thousands of cases which arise, what is a "reasonable rate" under the railway act? Can we imagine our courts establishing, even after decades of decisions and precedents, the various principles which are now being set forth in a few clear, explicit rules to enforce the pure food and drug act, by the administrative board which has charge of this question? For nearly twenty-five years the Sherman act has been on the statute book and the courts have been industriously seeking to establish the meaning of the words "restraint of trade." Yet over twelve hundred large combinations with nearly two billion capital still exist in doubtful legality. Can we picture our state courts likewise seeking through another generation to determine "reasonable" rates for gas, telephone, electric light, water and railway companies? The commission idea has gained such wide acceptance in federal regulation because it presents four pronounced advantages:

(a) Constant accessibility—all commissions are required by law to be permanently open for business.

(b) Expert service—all our commissions employ a staff of skilled investigators to bring in the facts. This independent impartial testimony from an unbiased point of view is invaluable.

(c) The commission offers a cheap, quick and informal procedure. This our courts cannot or will not do since they are held in leash by ancient custom and tradition.

(d) The commissions, as we have just seen, not only decide individual cases but issue sets of *regulations and rules* to execute the law. In short, they decide in advance most of the disputes which might come to them and apply the general principles of the law to vast numbers of cases to prevent disputes. This is probably their highest service and too little attention has been paid to it by the public. Courts decide, while commissions not only decide but prevent. If our courts could fulfill all these invaluable functions, we should have no need for commissions.

The highly promising trend towards administrative commissions in the national government is now well marked. The railway act is enforced by the commerce commission. The pure food and drugs act of 1906 has revolutionized this field of manufacture. Remarkably few heavy fines and penalties have been levied under it. A vast number of fine points of distinction between legal and illegal labels, methods of preparation, ingredients, etc., have arisen. Yet the law today is well cleared up on all essential points in less than a decade after its passage. It is administered chiefly by scientists in a chemical laboratory, by inspectors gathering samples and by *rules and regulations* issued by the secretary of agriculture, secretary of the treasury, and the secretary of commerce, acting as a joint board. Unfair competition in all forms of interstate business is forbidden by the act of September 26, 1914. Its enforcement is entrusted chiefly to the new Federal Trade Commission which has power to decide individual cases of unfair competition and, what is far more important, to make rules and regulations carrying out the principles of the act. The producer wants to know where he stands. Many have complained that under the old laws they had no clear idea of the legality of their acts nor did the competitor know his rights. This doubt and uncertainty, the administrative rulings of the commission speedily remove. Most interesting is the fact that the new laws do not regulate details. The commerce act says "discrimination," "reasonable rates"; the food and drugs act says "adulteration" and "misbranding"; the Trade Commission Law says "unfair competition." Every one of these phrases is fully as vague and indefinite as the term "restraint of trade" in the Sherman act. Yet what a remarkable difference in their enforcement. The new laws and the commerce act provide that the administrative commission shall determine by its rules and regulations the exact

meaning of "discrimination," "reasonableness," "adulteration," "misbranding," "unfair competition." It is this that gives flexibility, clearness and dispatch to the new system of business regulation.

2. The judicial mind by an effort, which, though arduous is none the less deserving of recognition, has begun to distinguish between the good and the bad trust. It has been greatly hampered in this effort by the absence of that administrative power which we have seen gives so much life and point to commission rules. Yet the courts have done their best to separate the sheep from the goats by the justly celebrated but widely misunderstood "rule of reason." When this rule was first proposed by Justice White in the dissenting minority opinion in the trans-Missouri freight association case, it was answered by the majority that the words "Every combination in restraint of trade," as used in the Sherman act, meant "Every," and that it was not for a court to insert in the law a proviso permitting reasonable restraint when the law-maker himself had refused to do so. Fourteen years later Justice White, now become chief of the supreme bench, again announced his doctrine and this time carried with him a majority of the court in the Standard Oil and Tobacco cases. The rule, shorn of its complexities, is simply that a combination when accused of restraint of trade will be judged by its purpose and effect; not by the accident of form nor the circumstance of size. Translated into the language of the layman, the rule means that since all coöperation or team work in industry involves an agreement by the members of the team not to compete with each other, but to coöperate, there must be some difference between reasonable and unreasonable restraint of trade. It is the unreasonable which the law forbids while the reasonable is to be permitted under the new rule. The best application of the rule of reason is seen in the United States *v.* St. Louis Terminal Association, 224 U. S. 383, decided in 1912. Here an interesting engineering problem had come in contact with the federal trust laws. The great breadth of the Mississippi River, the high banks on the St. Louis side, and the expense of bridging and tunnelling these two natural obstacles to entrance, had led to a combination of the lines entering St. Louis in a terminal association, which owned and operated all the approaches to the city. This association under the early tutelage of Jay Gould had placed in its by-laws a number of provisions de-

signed to keep out competitive lines in the future. Among these were clauses providing that the lines forming the terminal association would not construct other entrances to St. Louis than those owned by the association and that they would allow no new line to enter the association without unanimous consent. These provisions combined with the prohibitive expense of constructing any new independent entrances gave to the association an air-tight monopoly. The federal department of justice asked for a dissolution of the combine as a serious restraint of trade and in the resulting suit the court gave the most striking example of the rule of reason thus far seen in our regulative laws. It divided the combination into two separate features. First, the union of all the terminal facilities of the city under the control of the association and second, the restrictive and oppressive clauses by which outsiders were prevented from joining the association. The first, the union of facilities, was an economic and reasonable arrangement. It was not contrary to the spirit of the law even though it necessarily involved a cooperation between railways that were authorized competitors. The physical conformation of the territory round about the city which made competitive entrances impossible was heavily emphasized by the court and from it the court concluded that a union of competitors was essential and legal. But the second feature, involved in the restrictive clauses in the by-laws, clearly showed a purpose of oppression and restraint upon outside lines and such restraint had actually resulted. It was held to be illegal. The association was ordered, not to dissolve, but to repeal these violations of the law and to supplant them with reasonable rules under which other railways could both enter the association or enjoy upon reasonable terms its facilities for entrance.

If this decision is followed and the rule of reason extended, we shall cease to prosecute combines *because they are combines*, or because of their size, while we shall still continue to visit the penalties of the law upon those destructive and oppressive practices which are intended to wipe out the competitor or exploit the consumer.

3. The states have caught the spirit of administrative or commission regulation from the federal government. The few experimental commissions which were first established on the model of the national commerce body, have now been copied in thirty-three states and the District of Columbia. This system is not perfect.

Contrary to general expectations it has not afforded the consumer the full protection that was hoped, but one great service it has undoubtedly rendered. It has removed the regulation of public service companies from the field of legislative and partisan politics. We hear less of two cent per mile rate laws and more of methods of accounting, improvements in service, etc. Many of the state commissions, it is true, have taken it as their special mission in life to prevent municipal ownership of gas, electric light, and other public utilities. In order to do this, whenever called upon to appraise local utility plants which were about to be bought by the cities, the commissions have placed remarkable and inflated values upon such plants and thereby made it impossible for the cities to purchase. Whether the end toward which they aimed was good or not the method has been regrettable and has not stimulated public confidence in commission appraisals, but this must not blind us to the very real services which the commissions have performed.

4. We are shortening the delays in hearings and in the decision of law suits in public regulation. Until recently it has been the custom to appeal from decisions of the federal or state commissions to the courts, to hold up final decisions of the courts themselves, until such a dispute frequently, if not usually, required from five to seven years to decide. The friends of the commission plan now realize that such delays must be avoided in the future, since the very principle of commission regulation is at stake. No better means of destroying the new system could be found than to allow it to exist nominally while in practice suspending the commission rulings by long drawn out appeals. The friends of the new plan have therefore bent their energies toward shortening the appeal procedure and dropping out as many of the steps in this procedure as possible. The Interstate Commerce Commission rulings may be appealed to the federal courts but such appeals do not go to a district court; they are now made direct to the circuit courts of appeals, as are also the appeals from decisions of the new Federal Trade Commission. Many of the newer state laws provide that appeals from the public service commission shall go direct to the supreme court of the state. While this is not constitutional in all the states it is so in many and allows of a marked saving of time for both parties. After all is said, we must judge the new methods of regulation not by their aims and hopes but by their output, and it is

vital to their success that both producer and consumer shall have an early settlement of all essential questions in dispute.

5. The question, shall we have federal or state regulation?—is now rapidly pushing into the foreground as one of the prime issues in the successful working out of our regulative policy. The federal system has won a notable victory in the Shreveport decision and in order to realize the progress which this decision marks let us contrast it with the opinion in the Minnesota rate case. The real principle involved in these two opinions is extremely simple despite the complicated circumstances in which it was wrapped up. In the Minnesota rate case, Simpson *v.* Sheppard, 230 U. S. 352, the state authorities in Minnesota had reduced materially the freight rates to be charged within the state. The railways found that this affected the charges which they could make on interstate traffic passing through the state as well as on local traffic, because shippers whose freight was passing through Minnesota to other states could easily claim the advantage of the low rate within the state. In brief, the local Minnesota rate change immediately reduced the through rates on national traffic—"interstate trade." The railways accordingly claimed that the law was unconstitutional since it was in substance and effect a state regulation of interstate trade, and only the national government could legally regulate such national traffic. But the supreme court overruled this objection and upheld the state's regulation on the ground that while it did undoubtedly have the effect of influencing interstate rates its real purpose was to control local rates and this the state had a clear and undisputed right to do under the constitution. This decision seemed to destroy at one blow the freedom of national railway traffic from local interference and subjected such trade to all the petty, various and conflicting rules of the states through which it passed. It was indeed an ominous ruling which seriously undermined the prosperity of all the interstate carriers. But in the following year federal control was reasserted and the necessity for it clearly shown in the celebrated Shreveport case, Houston etc. Railway *v.* United States, 233 U. S. 342. Here the state authorities of Texas and the railways under their jurisdiction had established a system of local rates within the state which kept out trade from the commonwealth of Louisiana. Shreveport, La., was on the boundary line. It wished to become a distributing center and its merchants to this end sought

freight rates from Shreveport into the state of Texas which would enable them to send goods into large areas of that state and compete actively with the Texas distributing cities. The local railway rates, however, were so arranged from the boundary of Texas into the disputed markets as to discourage such outside competition while the local rates from the Texas cities to the disputed markets were kept at a lower point to favor the merchants of the Texas cities. Could the federal authorities intervene in such a situation? The Shreveport merchants appealed to the Interstate Commerce Commission for a through (interstate) rate which would enable them to compete in the territory in question. The Commission ruled in their favor, ordering the railways to remove the discrimination against interstate trade by readjusting the relation between interstate and local rates, that is, the railways should either lower the interstate rate to the same proportinate level as the local rate, or raise the local rate to the same proportionate level as that on interstate traffic. At once the railways and the state authorities appealed from this ruling, claiming it to be an infraction of the state's authority to fix its own local rates as it pleased. Basing their appeal on the Minnesota rate decision they maintained that since the state could determine the rates to be charged in local business within its boundaries, the federal authorities could not interfere with this action. The court upheld the national commission and declared that that body was authorized to regulate national railway rates. Its province was to protect and further interstate trade and in doing this it could remove any discrimination or barrier erected against such trade by no matter what local authority. The court explained further its opinion in the Minnesota case by saying that all state action which influences directly or indirectly interstate trade was only upon the suffrance of federal authorities. While a state law might be allowed to stand *in the absence of Federal action*, in the moment the Federal Government acted the state power ceased. This clear unequivocal definition of the national control has reëstablished, not the freedom, but the possibility of freedom from state interference, *if Congress will act*. Contrary to the belief in certain business circles we need not less regulation but more, and it must be by the federal government.

While all the above-mentioned changes in our regulative system are highly encouraging because they show the tendency to

bring policy into harmony with actual conditions, there are still needed two other important, even vital, improvements in this policy, both of which fortunately lie along the lines of our present growth and conform in principle to the ideas above described. These are a change in the powers of the trade commission and the further enlargement of national at the expense of state regulative control.

Our regulative laws need greater elasticity and flexibility. These qualities can only be given in the administration of the law. It is hopeless to attempt to secure flexibility by court action for reasons which we have already examined. We must rely to an ever greater extent upon administrative commissions and boards, particularly in the federal government, to apply the general principles of our regulative acts to the manifold and various conditions of national trade. The best instance of this can be seen in the much discussed and really important question of price protection in retail trade. Shall the manufacturer have the right to arrange with retailers that they shall sell only at a certain figure? On this point volumes have been written. The supreme court has covered it in two leading decisions: Bauer *v.* O'Donnell, 229 U. S. 1, and Miles Medical Co., *v.* Park Drug. Co., 220 U. S. 373. In these and other cases it has declared that price-fixing by agreement in interstate trade is a violation of the Sherman act because it is an agreement not to compete in prices but to fix a single price. An agreement not to compete is a restraint of trade. Accordingly the whole fabric and structure of price protection by agreement is illegal. There is no flexibility in this principle. The good and bad price-fixing agreements alike, the extortionate and the justifiable are both condemned. We need some administrative investigation and weighing of each agreement so that it can be condemned or approved in each case according to its purpose and effects. There is only one way of securing this. The powers of the federal trade commission should be enlarged to approve any agreement which would otherwise fall under the ban of the trust laws but which on careful inspection proves to be beneficial or harmless. Its present authority is too exclusively negative and prohibitive in character. It may forbid and investigate and deny but its *permissive* power is too limited. For example, Section 11 of the commission act provides that

nothing contained in this act shall be construed to prevent or interfere with the enforcement of the provisions of the anti-trust acts or the acts to regulate commerce, nor shall anything contained in the act be construed to alter, modify, or repeal the said anti-trust acts or the acts to regulate commerce or any part or parts thereof.

This makes it clear that the commission cannot legalize any agreement. Section 7, of the Clayton law, dealing with holding corporations and the union of competitive companies, declares that "nothing in this section shall be held or construed to authorize or make lawful anything heretofore prohibited or made illegal by the anti-trust laws, nor to exempt any person from the penal provisions thereof or the civil remedies therein provided." And Section 11, of the same act, after outlining the powers of the commission to prevent unfair competition, again limits the commission's authority by declaring that "no order of the commission or board or the judgment of the court to enforce the same shall in any wise relieve or absolve any person from any liability under the anti-trust acts." We have therefore in these two statutes several clearly worded clauses which emphatically reassert all the provisions of the Sherman act and prevent the new trade commission from using its power to apply the law in an effective and flexible way. Yet we have seen that the great advantage to be gained by such a commission is precisely this sound modern view of the law which would distinguish between various types of combinations in restraint of trade, allowing those which are beneficial to stand and suppressing those which are harmful. If the commission had this power it would solve the problem far better than a legislative control with its inflexible prohibitions and penalties.

There is no reason why our government should fix prices except in public service industries but there is every reason why it should not condemn indiscriminately all agreements to fix prices. It is feared by many that such an enlargement of the commission's power might fasten upon the country, by legal action, a scale of artificially high prices and might continue in existence with a guaranteed profit, the inefficient producer or merchant who refuses to adopt modern ideas and processes. But of this we need have no fear if our experience with the Interstate Commerce Commission is a safe guide. Rather would the tendency of public opinion compel an administrative body to keep prices at a reasonable level and this

pressure would in itself stimulate the producer to make use of every new and improved method in manufacture and merchandise. Such a change would give a much broader scale of liberty to interstate companies and would above all provide a much clearer definition of what they can and what they cannot do under the law. It offers the further advantage of being directly in line with our past administrative experience and precedents.

Finally the enlargement of the federal, at the expense of the state jurisdiction over national trade, is of equal, if not greater importance. Our supreme court today allows the states both to tax and to regulate interstate companies to an extent that was never intended by the constitution and in a way which seriously burdens and obstructs national business. Originally the federal courts resolutely defended national trade from state levies of this kind. In such statesman-like decisions as in Brown *v.* Maryland, Chief Justice Marshall and later his successors, in McCall *v.* California, Galveston Railway *v.* Texas and similar cases, held that the state must not interfere with national commerce because the regulative power over national trade had been given to Congress alone. In fact as late as 1909, in Western Union *v.* Kansas, 216 U. S. 1, the court declared that a state tax on the total capital stock of a *national* carrier was a burden on the *national* business of the carrier and therefore a violation of that clause which gave to Congress the regulation of national trade. These rulings all carried out the manifest intent of the clause in question but many of them had been rendered by a divided court, and nearly all the most important decisions were made by a vote of five to four.

The fluctuating majorities of the court have usually turned in all essential points against protection of interstate business and we have a series of rulings which threaten to modify if not repeal the protection of the commerce clause. A state may tax all the property located within the state belonging to an interstate carrier—Thompson *v.* Union Pacific, 9 Wallace 579. It may tax even the gross receipts within the state, from all sources, of an interstate carrier, provided it excuses the carrier from other taxes—U. S. Express Co., *v.* Minnesota, 223 U. S. 335. A state may even tax its share of the capital stock of an interstate carrier—Pullman Co. *v.* Pennsylvania, 141 U. S. 18. The state's share in this case is measured by its proportion of the total mileage covered by the

company's cars. And since the capital stock includes the value of the franchise or right to engage in interstate trading, the state may be said to have the right to tax that franchise. If the property, the gross receipts, the capital stock including the franchise of a carrier may be taxed, what is left?

And, when we come to those interstate companies which are not common carriers but are engaged in manufacturing and trading we find their lot indeed to be an unenviable one. The common carrier may at least construct its lines and transact its interstate business regardless of the state's wishes but other commercial companies, industrial or trading concerns, cannot transact any general business within the state without its consent. They may ship their goods in from outside, they may send their traveling salesmen in to take orders and in all such operations may claim the exemptions of interstate commerce but the moment they open an office for general business within a commonwealth, they are subject to its rules, regulations and taxes and may even be totally excluded should it see fit. So for example, The Horn Silver Mining Company, a Utah corporation with ten million dollars of capital, had been taxed in Utah where it was incorporated. Much of its property lay in Illinois and there it was taxed. But in an evil hour the company decided to enter the state of New York for the transaction of local business. For the privilege of opening a local office it was taxed upon its *entire capital stock*, the amount of the levy being thirty thousand dollars. It protested, appealing finally to the federal supreme court and claiming that as a company engaged in interstate business it could enter any state and if taxes were levied by a state for the privilege of transacting local business within its boundaries, such taxation must fall upon the local business for which they were charged and must not be levied upon the total national business of the company. But to this objection the court made answer that every state possessed absolute, complete control over the local business transacted within its bounds, just as Congress controlled interstate trade. No outside corporation could claim the right to engage in local trade against the will of the state. Accordingly if a state wished to keep out such a company absolutely it could do so, but the right to exclude carried with it also the right to admit under conditions, and one of these conditions might be the payment of a license or permit fee for the privilege of transacting local busi-

ness. If the Horn Mining Company wished to engage solely in interstate trading it might do so without paying such a license but when it opened a general office for all kinds of trade within New York State, it must first secure the permission of the state authorities. The fact that these authorities measure their license fee by the total capital stock of the company should not be regarded as proof that they were taxing interstate commerce, they were only measuring their tax by the amount of the capital stock and the levy really was a burden upon local business rather than national trade. This decision is not a temporary, freakish aberration from the general policy of the court. It is one of a long line of precedents by which the supreme court has so completely subjected national companies to state taxation that they are now obliged to evade such taxes by forming local companies with small capital to transact their local business. The stock of these local companies is owned by the parent concern. In order to secure the protection which the constitution guaranteed them they are obliged to resort to shifty expedients.

This brief survey shows how urgently we need a strong assertion of national sovereignty over national trade. State regulations and state taxes on this trade should be immediately superseded by federal action. We must remember that in all of its decisions upholding state rules on interstate commerce the supreme court has attached the proviso that such rules would be invalid *if Congress should act*. What we need, therefore, is action by the national government which will establish national rules to displace such interference, the further assertion by Congress of its regulative power over national trade to exempt both the carriers and other interstate companies from local taxation. The imposition by Congress of a national tax on such companies would be of invaluable assistance to the channels of national business. We should then have our interstate trade established on the sound basis of complete freedom from local interference and subject only to that flexible, adaptable and elastic regulation of the national administrative commissions which has been described. By this means only can we provide a constructive policy of regulation.

THE INFLUENCE OF THE FEDERAL RESERVE ACT UPON COMMERCIAL BORROWING

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Many bankers and a larger proportion of the business community have not as yet realized the tremendous influence which the Federal Reserve Act will have upon methods of commercial borrowing and the relations of the borrower to the banker. More than 7,600 national banks have joined the system, while with a few exceptions 15,000 state banks have thus far elected to pursue a policy of "watchful waiting." Although the member banks are numerically in the minority, yet their commanding resources and the influence which their operations exercise in the field of business are sufficiently great to cause the changes demanded by the Federal Reserve Act to eventually reach every class in the community. The development of the long-needed improvement in the methods of business borrowing will be gradual, but we are at the threshold of a long, and, let it be hoped, steady, wise and cautious development which will not be completed for many years.

The Federal Reserve Act contemplates that only certain well-defined classes of commercial paper shall be eligible for rediscount or purchase by the Federal reserve banks. The provisions of the act bearing upon this point are found in sections 13 and 14, and are as follows:

> Upon the indorsement of any of its member banks, with a waiver of demand, notice and protest by such bank, any Federal reserve bank may discount notes, drafts and bills of exchange arising out of commercial actual transactions; that is, notes, drafts, and bills of exchange issued or drawn for agricultural, industrial, or commercial purposes, or the proceeds of which have been used, or are to be be used, for such purposes, the Federal Reserve Board to have the right to determine or define the character of the paper thus eligible for discount, within the meaning of this Act. Nothing in this Act contained shall be construed to prohibit such notes, drafts, and bills of exchange, secured by staple agricultural products, or other goods, wares, or merchandise from being eligible for such discount; but such definition shall not include notes, drafts, or bills covering merely investments or issued or drawn for the purpose of carrying or trading in stocks,

bonds, or other investment securities, except bonds and notes of the government of the United States. Notes, drafts, and bills admitted to discount under the terms of this paragraph must have a maturity at the time of discount of not more than ninety days: *Provided*, That notes, drafts, and bills drawn or issued for agricultural purposes or based on live stock and having a maturity not exceeding six months may be discounted in an amount to be limited to a percentage of the capital of the Federal reserve bank, to be ascertained and fixed by the Federal Reserve Board. * * * * *

The aggregate of such notes and bills bearing the signature or indorsement of any one person, company, firm, or corporation rediscounted for any one bank shall at no time exceed ten per centum of the unimpaired capital and surplus of said bank; but this restriction shall not apply to the discount of bills of exchange drawn in good faith against actually existing values. * * * * * *

SEC. 14. Any Federal reserve bank may, under rules and regulations prescribed by the Federal Reserve Board, purchase and sell in the open market, at home or abroad, either from or to domestic or foreign banks, firms, corporations, or individuals, cable transfers and bankers' acceptance and bills of exchange of the kinds and maturities by this Act made eligible for rediscount, with or without the indorsement of a member bank. * * * * * *

Every Federal reserve bank shall have power: * * * * * *

(c) To purchase from member banks and to sell, with or without its indorsement, bills of exchange arising out of commercial transactions, as hereinbefore defined;

It is very important at the outset to note that the act specifically excludes notes, drafts or bills of exchange "covering merely investments or issued for the purpose of trading in stocks, bonds or other investment securities," that commercial paper, to be eligible, must "arise out of actual commercial transactions" which are explained to be paper, "the proceeds of which have been used or are to be used for such purposes." The inclusion of paper, the proceeds of which *are to be used*, opens up one of the most difficult administrative problems in connection with the matter of commercial borrowing, for the Federal Reserve Board, to whom, it will be remembered, is given the task of defining in detail the classes of paper which are eligible for rediscount, has had great difficulty in formulating a workable definition which will accord with the provisions and spirit of the act. A recital of the problems which have confronted the Board, and the reasons for the various regulations as promulgated, is the subject matter of this article.

The purpose of the Federal Reserve Act is to exclude all classes of paper, which are not self-liquidating. Mr. Samuel Untermyer well phrased the test which must be applied when he said:

> Commercial paper, as I understand it, is that which represents an actual transaction in the consummated purchase and sale of merchandise intended for resale and consumption. It must answer the test of being an obligation that automatically discharges itself in the ordinary course of business.

Mr. Festus J. Wade, one of the committee of the American Bankers Association, in his statement before the Senate committee declared that:

> We recommend as a committee that notes be based on what is known as commercial paper: that is to say, paper that is issued for the purchase of the products of the earth, of the farm, of the factory, of the mine, of the commercial establishment. That represents the commerce that is gradually consumed within a year or within a six-month period. . . . . Every bale of cotton that is ginned is consumed within a short period of time. Every bushel of wheat is consumed within a short period of time, every bolt of calico on an active merchant's shelf gradually goes into consumption, and they issue, in order to move that commerce, what is known as commercial paper, which matures within a short time, and it consumes itself, and therefore brings back from the Nation all over the money to meet the obligation of these short-time notes. . . . . The well-regulated commercial house never renews its paper.

On February 7, 1914, the Reserve Bank Organization Committee addressed a circular letter to a number of the leading clearing house associations of the country, asking each association to suggest a definition of commercial paper, which would meet the terms and spirit of the Federal Reserve Act. While it is impossible for us to go at length into the replies of the several clearing house associations, yet a brief review of the tenor of the responses will serve to indicate the remarkable unanimity of opinion among bankers as to the necessity for an improvement in certain classes of commercial paper. The responses of the clearing houses indicated that almost without exception the problem was recognized to be that of preventing abuses in the issue of single-name paper. Single-name paper includes all notes made to the order of the maker and endorsed by him; that is to say, paper where there is only one firm or name upon it. In some cases the paper of corporations bears the personal endorsement of leading stockholders or officials, but even when this is the case it is generally known as single-name paper.

The Boston clearing house in its reply pointed out the manifest disadvantages in declaring single-name ineligible for rediscount but declared that: "We believe, however, that it is desirable to encourage the making of strict 'Commercial Paper,' that is notes or accept-

ances for goods given by the buyer to the seller, and that this would benefit not merely the banks but the general credit situation in the country as well. We recommend that the Federal reserve banks provide that strict 'commercial paper,' as defined above, be discounted at a lower rate than single-name paper by the Federal reserve bank."

The Philadelphia clearing house declared that: "Great care, however, should be exercised by the Federal Reserve Board in not permitting too free an issue of currency against single-name paper" . . . . and recommended that: "In order to place a check upon too free an issue of single-name commercial paper and its rediscount . . . . the Federal Reserve Board might require that all single-name paper, to be eligible for rediscount, must be registered at the Federal reserve bank or branch in the district where the drawer's business is located." The reply set forth in detail the conditions which should govern the registration of such paper.

The Seattle clearing house recommended that "the established custom of the vendor carrying the account of the purchaser in an open form should be discouraged, and as rapidly as possible supplanted by substituting for the account short time notes (or acceptances)." The Denver clearing house took the same position, recommending that "obligations of this nature should eventually be converted into bills of exchange so that their character may be discernible at a glance."

It is worthy of note that the New York Clearing House took the most advanced position of all in its reply. While recognizing that the practice of financing large business enterprises through the sale of single-name paper could not be discontinued abruptly, the reply declared that: "We deem it a matter of the utmost importance that there should be a general restoration of the former conditions in this respect. The use of commercial acceptances abroad is a prime factor in the open discount market and a similar system should prevail in this country. The purpose of issue of this class of paper is apparent on its face; and as it retires itself automatically, it is an efficient aid in furnishing an elastic circulation."

The National Association of Credit Men, which also had been requested to consider this matter, replied that "there should be encouraged a gradual substitution in part of the two-name paper or commercial bills evidencing the sale and delivery of merchandise

for the rigid and open account credit system, so that it may not be deemed unusual for a note or acceptance to pass from buyer to seller as the evidence of merchandise bought and delivered," and recommended that in order to "assist the cultivation of the desirable commercial bill as a feature of our credit system, it must be accorded some distinct recognition other than the educative process which should gradually attract and win business men to its support. This recognition could be (a) limiting the one-name paper to 90 per cent of the total accepted for rediscount during the first year, to 85 per cent the second, and 75 per cent the third year; (b) allowing to the two-name paper or commercial bill a very slightly lower rate of discount."

As contrasted with this position, the Merchants Association of New York City made a vigorous protest against the elimination of single-name paper, contending that it would involve a radical change in the methods of handling business; would largely increase the volume of clerical work, through the necessity of handling hundreds of small notes instead of a few large ones, and make more difficult the marketing of such small units through note brokers.

The Federal Reserve Board has not gone so far as many of the Clearing House Associations have recommended. It has not excluded single-name paper from the privilege of rediscount. It has not given to the accepted commercial draft a lower rate of discount than that enjoyed by the single-name paper, nor has it specified the proportion of total rediscounts which can be made up of each class of paper, nor has it adopted the recommendation concerning the registration of single-name paper.

The first regulations concerning commercial paper were promulgated by the board on November 10, 1914. These regulations provided, in substance, that all eligible paper, when offered for rediscount after January 15, 1915,

shall show on its face, or by indorsement, a statement substantially to the following effect:

Eligible for rediscount with Federal Reserve Banks under regulations of the Federal Reserve Board Circular No. 13—

Credit File No.....
District No.....
Name of member bank .....

The credit file number shall refer to evidence in possession of the member bank that the proceeds of such notes, drafts, or bills of exchange, under the terms of the loans made or to be made, were, or are to be, used for agricultural, industrial, or commercial purposes, as required by Section 13 of the Federal Reserve act and as imposed by Regulation No. 2 of the Federal Reserve Board, and such credit files shall be open to inspection by any examiner appointed by the Controller of the Currency or selected by the Federal Reserve Bank discounting same, and copies of such files, or any part thereof, shall be furnished to the officers of the Federal Reserve Bank upon request.

The credit files referred to should contain not only evidence of the purpose or purposes for which such loans are made, but also full and complete information as to the financial responsibility of the borrower, including a short general description of the character of the business, balance sheet, and profit and loss account of the borrower. Assets should be divided into permanent or fixed investments, slow assets, and quick assets. On the liability side should be shown capital, long-time loans, and short-term loans. Short-term loans should be in proper proportion to quick assets, and the statement should contain satisfactory evidence that short term paper is not being sold against permanent or slow investments. The statement should, furthermore, show the maximum aggregate amount up to which the concern supplying this paper expects to borrow on short credit or sale of its paper, and the individual, firm, or corporation giving the statement should obligate himself or itself to obtain the member bank's consent before exceeding the agreed limit. The affixing of the stamp stating such paper to be eligible for rediscount will be considered a solemn and binding declaration by the member bank that the statement has been examined from this point of view and that the paper bought complies with all the requirements of the law and of the regulations hereby imposed.

An analysis of this regulation discloses the radical character of the requirements which it imposed. In the first place, the paper, in order to be eligible for rediscount, must be that of borrowers concerning whom the constituent bank offering the paper for discount has certain specified credit information in its credit file. In order to insure that this information is at hand, the member bank was required to affix the number of the credit file containing the information concerning this borrower. Little was left to the discretion of the bank concerning the character of this information. A balance sheet and a profit and loss account, arranged in a prescribed order and calling for prescribed information, were required. By the first, the assets and liabilities of the firm—fixed, slow and quick—must be shown; by the second, the firm's profits and the method of distributing them would be made known, and in addition, the signed and sworn statement should show the maximum

aggregate amount up to which the concern expected to borrow in the immediate future.

Business organizations protested against the severity of these requirements. It was suggested to the Board that the requirements were too radical; that the rank and file of the member banks did not have credit information concerning all of their borrowers, and that until such information could be procured, the member banks would be in a position of having paper which could not meet the technical requirements, and hence could not be rediscounted, irrespective of its goodness. This would leave the member banks in an unprotected position and might subject the system to too grave a danger in case of any unforeseen emergency. It was represented to the Board by many banks that it would be very impolitic to impose a general requirement of such a nature at the beginning. Business men would resent these inquiries and they might cost the national banks many customers who would go to state institutions where such requirements would not be observed. Particular umbrage would be taken against the disclosure of profits, which business men would feel might be used to their disadvantage, should the statements come under the eyes of directors or others directly or indirectly competing with them.

The requirement that a business firm should covenant as to the maximum amount of its borrowing on commercial paper, was also much criticized. It was pointed out that it would be impossible under present-day conditions for a large borrower, selling single-name paper, to get into communication with every bank which might hold its paper in case some unforeseen contingency might make it expedient to increase current borrowings. Single-name paper is widely distributed through note brokers, who jealously guard the names of their customers as a valuable business secret. Moreover, even if the note brokers coöperated, it might be difficult to locate all of the paper of a given firm, for frequently such paper is sold from one bank to another in inter-bank dealings.

In consequence of the various representations and objections which were made, the Federal Reserve Board announced on December 19, that it would postpone the going into effect of Regulation No. 4, scheduled for January 15, and later, on January 25, the board superseded this regulation with a new regulation (Regulation B, Series of 1915) which materially softened the requirements which

must be met by eligible commercial paper when offered for rediscount. The Board left to each Federal reserve bank the right to determine the method of certifying the eligibility of commercial paper, thus enabling the reserve banks to frame their procedure with due regard to local conditions and customs.

The Board required in substance that any member bank applying for rediscount must certify in its letter of application, over the signature of a duly authorized officer, that to the best of its knowledge and belief the bill was issued for one of the purposes authorized by the Federal Reserve Act. The letter of application must also state whether the paper is depositor's or purchased paper or paper rediscounted for other member banks, and also whether statements are on file.

Regulation B provides that when it does not appear that such statements are on file, except in the three cases where statements are waived,—

> the Federal Reserve Bank shall satisfy itself as to the eligibility of the paper offered for rediscount, and member banks will be expected to use such statement forms, identifying stamps, etc., as may be prescribed by the respective Federal Reserve Banks. Any member bank rediscounting with a Federal Reserve Bank paper acquired from another member bank, with the indorsement of such member bank, may accept such member's certification regarding the character of the paper and the existence of the necessary statements.

Statements of the borrower's financial condition may be waived where notes offered for rediscount have been discounted by member banks *for any of their depositors*, in three cases:

> (1) If the bill bears the signatures of the purchaser and the seller of the goods and presents *prima facie* evidence that it was issued for goods actually purchased or sold; or
>
> (2) If the aggregate amount of obligations of such depositor actually rediscounted and offered for rediscount does not exceed $5,000, but in no event a sum in excess of 10 per centum of the paid-in capital of the member bank; or
>
> (3) If the bill be specifically secured by approved warehouse receipts covering readily marketable staples:
>
> *Provided*, however, That the bank shall certify to these conditions on the application blank in a manner to be designated by the respective Federal Reserve Banks.

These three conditions contemplate, in substance, the waiving of borrower's statements in the case of accepted commercial drafts and where the paper is that of the small farmer, business man or

retailer. It should be noted that the $5,000 limit mentioned in paragraph 2 above does not necessarily contemplate that statements shall be offered where the borrower has *sold* paper to an amount exceeding $5,000, but that the limit of $5,000 covers the paper offered for rediscount. In other words, the borrower might have discounted $25,000 worth of paper, but so long as the bank chooses to hold $20,000 or more of this paper, rediscounting $5,000 or less, the statement is not required. The third exemption covers, in substance, commercial paper secured by cotton, grain or other warehouse receipts. In this case the value of the collateral is presumed to be sufficient to warrant the waiving of the requirement of a borrower's statement.

The Federal Reserve Board has recommended that these requirements be imposed at once in the purchase of paper from note brokers. The regulation, however, does not become effective until July 15 of this year, thus giving the banks time to adjust their affairs to meet the requirements of the Board.

The Board recommends that every member bank maintain a credit file which "shall contain original signed statements of the financial condition of borrowers, or true copies thereof, certified by a member bank or by a notary public, designating where the original statement is on file. Statements shall contain all the information essential to a clear and correct knowledge of the borrower's credit and of his method of borrowing."

The Board specifies in a general way the character of information which should be in the credit files of member banks. Such files should contain information concerning the nature of the business or occupation of the borrower, the extent of his indebtedness and his financial responsibility. Where the borrower is a firm or corporation, a balance sheet showing quick assets, slow assets, permanent or fixed assets, current liabilities and accounts, short-term loans, long-term loans and capital and surplus should be at hand. Furthermore, the contingent liabilities, such as endorsements, guaranties, etc., should be set forth in detail, and information should be given respecting any mortgage debt and as to whether there is any lien on current assets.

It is too early to accurately estimate the effect of these requirements. The Board declares that in making the changes in its regulations, it "has not modified its views upon the general principles"

expressed in its regulations of 1914 "as being of fundamental importance in the best development of the new system."

The new requirements of the Board were prompted by a desire to slowly educate their customers in giving statements. The board in its 1915 regulations enjoins the member banks "to do their utmost to accustom their borrowers in furnishing such statements," even where the furnishing of statements is not required under the three classes of exemptions noted above. It is very clear to anyone who has carefully perused the regulations of the Federal Reserve Board that a progressive development in scope and detail of the regulations is contemplated, with a view to improving the general quality of commercial paper offered for discount, both through the exclusion of undesirable paper given by overextended borrowers and more particularly with a view to requiring the payment of paper when due, rather than its renewal, as has too often been the practice in the past. This work will occupy a period of years and if done carefully and without violent and arbitrary changes will be of the greatest assistance to the business men of this country. It will raise commercial paper to the proud position of being the best class of banking asset—a position held by such paper in every country in Europe. This will mean lower rates of interest to the business man and greater security in his dealings with the bank. With the paper of weak or reckless borrowers eliminated, the losses sustained by banks through the purchase of this class of investment will be materially reduced, thus leading to the investment of a larger amount of money in this manner.

The greatest incentive to increased investments in commercial paper by member banks will be the fact that commercial paper, meeting the requirements of the board, can be converted into cash whenever an emergency arises through the rediscount of it with the Federal reserve banks. This is the only class of banking asset which a bank may certainly count as being always liquid. Commercial paper will largely supersede the call loan as the secondary reserve of our member banks, thus diverting a large amount of money, which has heretofore, of necessity, been used in more or less speculative transactions, into commercial channels to the great profit of our country and the welfare of our banks.

THE FREE PORT AN AGENCY FOR THE DEVELOPMENT OF AMERICAN COMMERCE

By Frederic C. Howe,

Commissioner of Immigration at the Port of New York.

An Overlooked Element in International Trade

In the discussion and legislation now going forward for the reëstablishment of the American merchant marine and the development of our carrying trade a very important, possibly the most important, of all elements has been neglected. And that is the necessity of cargoes, not only for incoming ships but for outgoing ones as well. In order to re-create our merchant marine and enter the field for the carrying trade of the world in competition with England and Germany, it is necessary that ships should be able to speedily and surely find cargoes. And neither the modification of the registration acts nor the acquisition of ships by the government will achieve the desired result unless provision is made for this primary condition as well. Incoming as well as outgoing cargoes are a *sine qua non* to the development of American trade and shipping.

The Opportunity. Several things coöperate at the present time for re-creation of our carrying trade. They are the European war, the opening of the Panama Canal, the amendments to the registry act and the new currency measure. Added to these is the substantial extension of the free list in the recently enacted tariff bill. The European war has closed the ports of Germany and Russia. It has dislocated the carrying trade of England, Belgium and the Mediterranean countries. The Panama Canal brings South America close to North America and also opens up the trade of the Orient to us. We now have the financial machinery for the transaction of a world business through the establishment of subsidiary banking branches, while our attitude of friendly neutrality to all of the nations involved in the present war lends a strong moral influence to the development of American trade.

The Present Carrying Trade of the World. It is the countries that have substantially free trade that do the carrying trade of the world. They are England, Germany (through her free ports),

Belgium, Holland and Denmark. The great bulk of the carrying trade is done by Great Britain, because she is a free trade country, and a reference to the rise of British shipping in the years which followed the repeal of the corn laws shows a tremendous and immediate increase in her oversea trade following the establishment of free trade. For fifty years she has been mistress of the seas for the very simple reason that ships could come to her ports from all over the world; they could there discharge their cargoes and find other cargoes awaiting them without delay. Here there were no obstacles, obstructions or tariff barriers to interfere with traffic. All history is unanimous in its demonstration that carrying trade will go hundreds of miles to escape tariff barriers. Protective tariffs killed the Spanish trade; they destroyed the rich and prosperous cities of the Netherlands. They killed our own foreign shipping; for commerce hates tariff barriers. In recent years Germany has begun to compete with Great Britain for the carrying trade of the world. She has been able to do this through her free ports, which have existed in Hamburg, Bremen and Lübeck, ever since the Franco-Prussian war. These concessions were insisted on by these old free cities when they entered the Empire. And by Imperial law there exists in the harbor of these cities a large free harbor, into which ships can come and go without the payment of customs duties upon their cargoes. By this means a free counter is provided, across which goods can be exchanged and trans-shipped to other destinations. Or they can be placed in great storage warehouses, where they can remain for an indefinite period until cargoes have accumulated for other ports. If desired they can be shipped at any time into the Empire on the payment of the customs duties. These ports have grown with great rapidity. Here cargoes can be broken and new ones made up. To these ports ships can come from any place in the globe with the assurance that they will quickly find outgoing cargoes to some other destination. The free port has contributed greatly to the upbuilding of German shipping.

THE PROPOSAL

America cannot hope to establish herself as a clearing house of the world until cargoes exist with which to fill ships' bottoms. For ships must be filled not only going but coming;

they must be able to change their destination and do a tramp trade. As it is now, we have cargoes of raw materials to European countries and some outgoing and incoming cargoes to South America and the Orient. But our protective tariff prevents the importation of European wares and compels a large part of the trans-Atlantic shipping to go empty one way.

How can this obstacle be overcome? Aside from a policy of free trade the only other alternative is the development of the free port idea along the lines of German experience. And the suggestion is that Congress should provide for a half dozen free ports as an experiment; three of which should be on the Atlantic seaboard, one on the Gulf, one at Panama, and one or two upon the Pacific Coast.

Quite obviously these free ports should recognize existing transportation and industrial conditions; they should be linked up with rail transportation. The leading Atlantic ports are New York, Boston, and Philadelphia. And New York and Boston have admirable natural advantages and harbor facilities for the planning of such ports. New Orleans is a natural port upon the Gulf of Mexico and may become a port of great prominence in connection with the Panama Canal traffic. Upon the Pacific coast San Francisco, Los Angeles and Seattle are all ports of importance, all of which either own or plan to own a comprehensive system of municipal docks. These would seem to be the natural harbors for the making of preliminary experiments. In addition, all of these cities are rail terminals and have a substantial industrial life which would be quickened by contact with the free port idea.

These ports might be opened in coöperation with various cities. Or it might be provided that any city with a certain amount of customs receipts that offered dockage for a free port would be entitled to enjoy this privilege. This would be an encouragement to cities to acquire and develop their own docks and harbors, which for the most part are in the control of private interests.

Into these ports ships could come from all over the world, from Europe, Africa, Asia, and South America. Here their cargoes could be placed in warehouses without the payment of customs dues; or cargoes could be broken and re-made. Goods which remained in the warehouses would be placed in bond, as is now done for importers.

In addition to the obvious advantages from the re-creation of our shipping, the diversion of trade to American ports would cheapen the cost of living. It would add other business, for periodic surpluses of goods would accumulate, which would find their way into the country, and would also place near at hand many materials needed in industry.

The free port would offer great opportunity for financial operations, now made possible by the recent currency act. It would stimulate international banking, and would tend to shift the financial center of the world to this country. And America, by the logic of events, has become the natural center for the world's financing, just as London became that center several centuries ago, when it shifted from the cities of the Netherlands. But the financial center will only move to this country when it becomes a clearing-house of goods as well as of money. For credit the world over is created by currently created wealth in transit or change, so that even our financial expansion is dependent upon the opening up of American ports to the clearance of the wealth of the world.

Now is the opportune moment for the development of this policy, while the ports of many nations are closed to trade. In addition, South America, the Pacific Islands, and the Orient have become more accessible to our ports through the Panama Canal than they have to the older ports of Europe. There is every reason why many of these countries should prefer to trade with us. But they can only do so when ships are in a position to earn the same return from our ports that they now earn from the ports of England, Germany and the other countries of Europe.

THE FREE PORT OF HAMBURG

Description. When Hamburg entered the German Empire in 1871 the city retained the right to remain a free port, which it had been in substance for centuries. The greater part of the port was set aside as a free port outside the customs union, as the whole city had been before. The Empire contributed 40,000,000 marks toward the construction of the free port, while the city contributed about 150,000,000 marks.

The free port consists of a large number of basins, many of them cut into the land, with quays jutting out into the river. Upon these quays are railroad tracks with cranes for the easy transfer of

freight into the near-by sheds. In the larger outside basins are many mooring posts which provide anchorage for vessels transshipping cargoes in the stream.

As a part of the free port many warehouses are operated by the port authorities. Goods are stored in these warehouses for reexport or for ultimate consignment into Germany or the other countries of Europe.

The free port is considered by the customs department as foreign territory. It is surrounded by a customs line guarded by customs officials. The line is designated by high iron palings upon the land side, while along the river is a floating palisade with an imaginary line across the river, guarded at either end by customs officials. At the land and water entrances of the free port are customs booths at which duty is paid on goods when they enter the Empire.

All of the Hamburg pilots are *ex-officio* customs inspectors. Under their guidance ships pass to their berths in the free port unmolested by customs officers. There are no declarations of dutiable goods to be made; no customs officials are taken aboard, with the delays attendant upon their presence. When a ship is cargoed ready for sea a customs inspector-pilot takes her from the free port to the mouth of the river. At no time is any other representative of the customs service aboard the boat. There is less hindrance to the free movement of the ship than in the free ports of England.

The free port contains such industries as are incident to the care and feeding of the employees; shipyards for repairs; and other industries relating to the building, outfitting and provisioning of ships. In addition there are certain rice-mills and oil-mills. About 15,000 workmen are employed in the free port, but at least 12,000 are employed in the shipyards.

German export produce is loaded to the outgoing ships by big river barges of from 600 to 800 tons' capacity, or by harbor lighters of about 60 tons. River barges are only permitted when they contain at least 50 tons of freight.

The cargoes of very many vessels are handled in mid-stream at the mooring-posts, nearly one-half the tonnage of the harbor being discharged in this way. By this means the capacity of the port is doubled.

Administration, Cost, Etc. The warehousing business of the

free port is in the hands of state control, and is partially privately operated by the warehousing company which erects warehouses upon public lands in the free port. The company issues warrants transferable to order on goods stored in the property. A portion of the net profits has been set aside to create a fund for the acquisition of the company's stock by the state, which will eventually become the full owner of the property by this process. Over 1,000,000 square feet of ground are covered by the warehouses, which contain 5,500,000 square feet of storage space.

The port is not operated to yield a return on the investment, but to develop the prosperity of the city. Low tonnage dues are collected on these ships and for the use of mooring posts, but all these dues are very low. The largest ship that can come up the Elbe and discharge at mooring posts has to pay only $11 for discharging in mid-stream.

Collection of Customs Dues. The method of collection of import duties on goods passing from the free port to the Empire is as follows. A line of custom houses is maintained about the free port. Goods imported may pay the duty on the spot, or the importer may have a running account against a deposit made by him in the form of German government securities, agaisnt which the custom dues are debited.

For the further convenience of importers, goods may be shipped with a customs certificate, under which they are forwarded to the inland consignee, who has to pay the duty on delivery. This system is permitted to Hamburg firms who are well known, without a deposit being required. And goods forwarded in transit through Germany to other countries are handled in the same way, provision being made for the collection of the duty from the ultimate consignee. Other conveniences also exist for the easy importation of goods.

The Commerce of Hamburg. Hamburg is the second seaport in the world, its total foreign commerce being only $6,000,000 under that of New York in 1913. The total foreign commerce of the port is $1,960,000,000. It exceeds that of London by $100,000,000, and far exceeds Liverpool in imports, although England is a free trade country. The growth in recent years has been enormous. Germany has become a great carrying nation within very

recent years. Undoubtedly a large part of this is due to the fact that Hamburg, Bremen and Lübeck are free ports.

Sixty per cent of the maritime commerce of Germany and 40 per cent of its entire foreign commerce passes through Hamburg.

The following statistics are indicative of the sea-going commerce of Hamburg. They are for the year 1907:

	Number of vessels	Net register of tons
Arrival	16,473	12,040,000
Departure	16,507	12,103,200

The commerce for the same year, 1907, was as follows:

	Weight—Tons	Value—Marks
Imports	14,670,200	3,577,314,700
Exports	6,142,200	2,802,218,100
Total	20,812,400	6,379,532,800

A part of the exports are of German products, but a large part are goods trans-shipped in the free port and reëxported to other countries. A large part of these reëxports come from the Orient, North and South America, the Mediterranean and Africa. Among the leading articles of reëxport are the following:

	Imports	Exports
Coffee	205,000,000 marks	81,500,000 marks
Wood	205,600,000 marks	49,000,000 marks
Vegetable oils	42,400,000 marks	47,000,000 marks
Rubber	117,400,000 marks	39,500,000 marks
Cotton	160,400,000 marks	38,000,000 marks
Cocoa	72,500,000 marks	35,000,000 marks

It is estimated that about one-fifth of Hamburg's exports in volume and in value are reëxports through the free port. They amounted in 1907 to 1,350,000 tons.

OPINIONS ON THE FREE PORT

Mr. Edwin J. Clapp in his treatise on *The Free Port of Hamburg* says:

> The first advantage of the free port is in facilitating reëxportation; indeed the importance of the reëxportation trade is large and, above all else, led to its creation. In the free port foreign merchants can maintain sample or consignment stocks. Bonded warehouses do not offer the same opportunity for unhindered movement of merchandise within a port. Everything must be done under the control of customs men. In Hamburg there is no need of counting and verifying

pieces when a reëxportation is made. A bonded warehouse cannot offer the same facilities for various manipulations necessary to prepare the goods for the consumer, such as cutting wines and mixing coffees.

Perhaps the chief advantage of the free port lies in the facilities it offers for the rapid, frictionless discharge of ships with dutiable goods, whether destined for reëxportation or shipment inland.

The free port of Hamburg lets the Hamburg merchants store their goods duty free and offers them complete freedom of manipulation for reëxporting them or for sending them inland, as the market dictates.

Sir Charles Malcolm Kennedy, head of the commercial department of the foreign office of England, says:

In countries where high customs duties are levied and where fiscal regulations are rigid, if an extension of foreign trade is desired and the competition which it involves is a national aim, special facilities must be granted for this purpose. In these circumstances a free zone, sufficiently large to admit of commercial operations and trans-shipments on a scale which will fulfill these conditions (watched but not interfered with by the customs), becomes indispensable. The German government has maintained a free zone of this nature at Hamburg.

Colonial free ports such as Hong Kong and Singapore do not interfere with the uniformity of the home customs and excise policy. These two harbors in particular have become great shipping resorts and distributing centers. The policy which led to their establishment as free ports has certainly promoted British commercial interests.

RECAPITULATION—ADVANTAGES

(*a*) Without exception the free ports—those of England, Hamburg, Bremen, Lübeck, Antwerp, Copenhagen, Hong Kong and Singapore—are among the commanding ports of the world.

(*b*) The free port will aid in the reëstablishment of American shipping; it will furnish cargoes going and coming, as well as employment in the harbors.

(*c*) It will link the United States with South America, Asia and Africa by trade connections which will tend to the promotion of friendly relations to the commercial advantage of each, and will supply an easier outlet for American goods.

(*d*) The most important gain is the direct gain to America. It will cheapen commodities by bringing great quantities of goods to our doors for importation or export, as trade needs demand. It will stimulate the growth of exporting houses, which can hold goods for an indefinite period without the payment of tariff dues (often equal to the cost of the article itself) for disposal to meet the

trade demands of the whole world. It will upbuild international credit, and shift to America an increasing and ultimately a predominant share in international exchange. It will also aid American manufacturers in need of foreign supplies, who will be able to secure them at American ports of entry, in which merchants can exhibit samples, can mix, grade and alter for domestic or export use, and to which buyers from America and other countries can come as to a great market-place in which commodities of the world are exhibited for purchase and sale.

In addition the opening of the Panama Canal will still further dislocate the trade routes, just as did the opening of the Suez Canal. It places New York, New Orleans and San Francisco in a far different relation than they previously occupied. The recently inaugurated federal reserve currency bill makes possible the development of international credit, which will be largely aided by the up-building of oversea traffic, with the consequent merchandizing and consignee houses that exist in countries where free trade exists.

Finally, America is the natural country to be the counter of the world. Its seacoasts face every other continent; it is the greatest of all reservoirs of raw materials and foodstuffs. In iron and steel and standardized production it is in a position to compete with the world. But international trade (and this is always overlooked) must be reciprocal. It cannot be one-sided. And credit balances cannot for any prolonged period be paid in gold. They can only be paid by exchange of wealth.

THE MODERN TERMINAL PORT

By William Joshua Barney,
Consulting Engineer, New York City.

Efficient terminals are today essential to social and economic advancement. Among railroad men, the great problem of transportation is the cost and speed of handling goods through the terminals. On the main lines of the great railroads, little improvement can be made for speed and economy. Millions, therefore, are being spent by the railroads to make their terminals more convenient and efficient for passengers and freight.

All the great ports on the continent, from Montreal all the way round to Seattle, have paid out large sums of money to experts to plan their terminal ports. They have spent millions in construction—much of which has been expended to modernize and to correlate existing piers, sheds and waterfront railroad yards. On every hand, corporation and public authorities are beginning to concentrate brains and capital on the problem of the modern terminal.

The "modern terminal port" may be defined as "a terminal of terminals" and is a more inclusive term than "The modern terminal." The latter phrase is too often limited by custom to a railroad terminus, whereas the terminal port involves the designing and constructing of piers, bulkhead, wharves, pier sheds, warehouses, mechanical equipment, lighting, heating and also railroad tracks and yards, and railroad equipment in all its complexities. In generalities, it requires wide and experienced imagination for the proper planning of future facilities, tempered by a proper sense of proportion as to financial and commercial expectation. In administration, it demands tact and executive ability to adjust and correlate existing enterprises, and to bring many varied interests into one harmonious whole.

This science of creating terminal ports is in its infancy in this country. Its principles are known to a few, its importance realized by a moiety. Its literature is comprised in random articles and papers before societies. It is a science, therefore, to advance

which will pay the individual by its very scope and by its opportunities to contribute to its literature and recognition. A study and dissemination of its principles and importance should appeal strongly to municipal and national patriotism. Many of our ports—sea, lake and river—are having but a tithe of their full prosperity, because their citizens fail to realize that antiquated wharves, uncorrelated with the railroads, strangle growth in wealth and population. In contrast, the modern prosperity of Hamburg, Liverpool and New Orleans is resultant from their terminal ports, the existence of which is largely due to the energetic realization by their citizens of the necessity for such terminal organization. The people of a city must be in insistent accord with terminal development for it to advance effectively—and authoritatively informed leaders are needed to create this popular accord and understanding.

The old simile that transportation ways are the arteries of a civilized state should be carried further to emphasize that the terminals of transportation, especially waterfront terminals, are the heart centers. Even with the best of arteries, if these heart centers are clogged, there is an unwarrantedly slow and costly circulation of freight and food supplies. Viewed from this angle, the terminal organization of the city becomes of utmost importance to the economist and social worker. In fact, bad terminals are prime contributors to the high cost of living, since they result in confused masses of freight passing in and out of the city at exorbitant cost in time, labor and money.

For example—a truck farmer of Staten Island, one of the boroughs of Greater New York, leaves his farm before midnight to drive slowly into the great wholesale district along Greenwich Street on the lower west side of Manhattan. He arrives there early in the morning and disposes of his produce and returns home. That evening is placed on his neighbor's table some of the same food so laboriously taken to Manhattan in the morning, for the local grocer has followed behind the farmer some four or five hours later, purchased his vegetables from the wholesale man in Manhattan and brought them back to Staten Island. Food cannot be moved ten or fifteen miles and returned without someone having to pay for the unnecessary hauling.

This condition obtains for practically all the great city of New

York. Through trade customs, prestige and organization, practically the entire wholesale food business of New York, save meat and fish, is contracted into a few blocks in the lower west side of Manhattan. To this center all food supplies are trucked, usually under crowded and congested conditions, and are likewise trucked away to the various retail dealers, many of whom are located only a few blocks away from an original point of entry for such supplies.

This problem of sub-dividing the market center is now engaging much attention in New York; and unquestionably, at no distant date, the Bronx, Brooklyn, Queens and Staten Island will be provided with their own market terminals, served by direct railroad connection and by lighters and small crafts. Such rearrangement of market facilities provides an excellent opportunity to introduce modern sanitation, both in the construction and inspection, which is sadly lacking in the markets of most American cities.

Practically every city thus illustrates, in one way or another, how directly poor terminal arrangements affect the cost, comfort and sanitation of living. Therefore, when studying a city and its life, the student of theoretical economy or the direct worker for social betterment should first look into the terminal conditions, for in them only too often will be found the source of the community's economic and sanitary problems. The science of terminal planning thus becomes a touchstone of great value to the economist and sociologist. To this end let us consider the elements and the characteristics of the modern terminal port.

Reverting to the first definition of a terminal port, "a terminal of terminals," there are two phases to consider—first, the individual terminals of a port which may be based on one pier or many; second, the interrelation of these individual terminals in forming one composite whole.

The individual terminals may be advantageously classified with reference to the origin and destination of the goods or freight passing through them. In these classifications, as in grouping generally, clear-cut lines of division are assumed for discussion, but do not occur in reality, since practically all classes of goods in small or great quantities will pass through every terminal. One type, however, usually so predominates that the terminal may be placed.

First, there is the trans-shipping or import-export terminal.

Such a terminal is primarily a point of interchange between the railroads, river crafts, coastwise steamers, and oversea ships. Goods are received from all parts of the country, assorted and assembled into cargoes for export; in the same manner cargoes from abroad are unloaded, classified and distributed throughout the country.

The characteristic of the trans-shipment terminal is that it forms a community or center of business, that may be, in fact should be, located in the outlying sections of the city, since the freight there handled is not destined for the city proper: for example, Tillbury Docks, some eight miles below London, or the trans-shipping sections of the great terminal companies in the outlying sections of New York.

In the second class of waterfront terminals is placed the industrial terminal. Through this type of terminal, raw goods pass into the city to be manufactured, and the finished articles pass out. In its highest form, such a terminal is really an industrial area fed by railroads at the rear and by vessels on the waterfront. This terminal requires a larger space than the trans-shipping terminal for its proper development and has a closer relation to the city activities, since the many people employed in the factories and warehouses require homes adjacent; and the salesrooms and general offices of the industrial concerns should be convenient to the general public.

The third type of terminal, the city terminal, is more intimately involved in the life of the city than the industrial terminal. Through the city terminal are handled the articles for daily consumption, such as foodstuffs, and for local use, such as building materials. On the waterfront, such a terminal should be located close to the heart of the wholesale and retail districts, and should provide facilities both for large and small crafts; and should have trunk line connections to its switching tracks and sidings.

In a fourth class is the city-railroad terminal. At most ports it is possible, in a large measure, to separate the local railroad service from the local waterfront service. Thus the shore front and adjacent areas are not preëmpted or congested by railroad yards and freight yards, which may be well placed to the rear or landward side of the city. In fact, these railroad terminals for handling city-railroad freight should only intrude upon the water-

front under peculiar conditions, such as obtain at New York and San Francisco.

Another type of terminal, not existing in this country, is the free port. A free port is in a protective country and comprises a definitely bounded shorefront and adjacent upland which is regarded as foreign territory in respect to the imposition of tariff duties. Its waterfront is a port where freight from the protected hinterland and from abroad may be assembled for trans-shipment to foreign countries without custom inspection or payment of duties. Its upland is an area, separated from the protective country by definite custom barriers wherein raw materials and products from inland and abroad may be gathered and manufactured for exportation to foreign markets without custom supervision and charges.

Merchandise and raw materials may enter a free port of the protective country from any direction without custom restraint; but can leave free of duty only for foreign territory—unless previously entered into the free port under a drawback. Goods crossing the custom barrier into the protective hinterland must pay duty as though the shipments were from territory actually foreign. A free port, therefore, combines in reality the characteristics of the trans-shipping and of the industrial terminal, but isolated by custom restrictions and with the necessary physical barriers to enforce the same.

Lastly, there are the terminals for passengers which in reality are another form of freight and a form that has an influence out of proportion to its importance, especially in marine terminals. In our larger cities the railroads have separated their passenger and freight stations, placing the former as close as possible to the center of the hotel, shopping and commercial life; the latter, in outlying and less valuable sections. Unfortunately the separation of passengers and goods is not practical in marine transportation;—except under the rare conditions obtaining at Liverpool, where passengers are discharged at a landing stage and the vessel then warped into a dock for the handling of cargoes. For physical and financial reasons passengers and freight must usually be landed at the same wharves. The passenger is constantly insisting that the landing be nearer and nearer to the center of the city, whereas the efficient and economic handling of the cargoes may require outlying or

trans-shipping terminals. In this conflict, unfortunately, the passenger freight has frequently prevailed over the inanimate cargo with consequent congestion and higher costs to the city and country in order to save its passengers a few minutes' inconvenience or delay.

A terminal location is often selected because the land is cheap or has features that permit less costly construction; yet the location so chosen frequently imposes a permanent tax on the community by unnecessarily high handling charges because no consideration was given to the class of freight to be handled, or frequently the same results are imposed by the growth of the port. Therefore the classification of terminals with regard to the origin and destination of goods is a valuable guide to the investigator in analyzing the advantages and drawbacks of a terminal port, or to the expert in planning future facilities.

With the location of the terminal analyzed, the plan or arrangement for the terminal itself may be considered. In all plans for the various terminals are found practically the same features, wharves, transit sheds, warehouses, railroads, tracks, mechanical equipment, etc., but varied and emphasized to meet the conditions and requirements of the particular terminal.

In this country with moderate rise and fall of tides, the shorefront has been improved under two general schemes: the first, the pier and slip plan; the second, the quay plan.

In the first system, wharves, termed piers, are built from the bank into the fairway or stream with water slips or artificial inlets between them, in which the ships lie along the wharves while discharging their cargoes. The shorefront proper from which the piers spring is usually retained by a bulkhead. The great attraction of this system is that, for a given length of shore front, the lineal feet of wharfage or berthing space may be greatly increased. It has therefore been generally adopted in ports where the area of the harbor, or the width of the stream, is sufficient to permit these projecting piers without narrowing the fairway or channel so much as to interfere with the ready and safe handling of vessels.

On the other hand, piers and slips have certain disadvantages. Frequently in the desire to obtain a larger ratio of wharfage to shorefront, piers are made too narrow for their length, which results in costly congestion in the handling of freight. All freight

handled between the pier and the mainland must pass in and out of the door or doors at the shore end of the pier, which in too narrow a pier, like the neck of a bottle, prevents rapid handling of freight. This pier congestion has been avoided in modern designing by making the piers of ample width, two hundred and fifty feet to three hundred feet for large vessels. The central strip of such a pier is usually reserved as an open driveway or street. The pier thus becomes, in fact, a projecting quay. If the tidal movement or the stream current is very swift, it becomes difficult for vessels to warp in and out of the slips. However, practically all the great ports of this country, except New Orleans, are developing under the pier and slip plan.

The quay system of improvement has been extensively followed by river ports, our most important example being New Orleans. In a quay development, the natural shorefront is retained by bulkhead walls forming quays, and the ship lies parallel with the shorefront, instead of at various angles as under the pier and slip plan. There is thus little projection of structure or traffic into the stream which is therefore fully available for the navigation of vessels. For this reason, the quay system is particularly advantageous for terminals along narrow fairways.

The movement of freight across a quay is less crowded and more rapid than the movement of freight down a pier. Cargoes landed on a quay and placed under a shed or open platform may be removed by railroad cars or trucks at many points along the back of the shed or platform without congestion. In other words, the quay movement of freight is lateral and direct from the ship to the hinterland, whereas, on a pier, the movement of freight is always at right angles from the ship along the pier; and, in distribution, goods must all pass through the one exit.

The type of shed placed upon the pier or immediately along the quay is governed largely by the class of terminal or of freight handled. Where the sheds serve merely as temporary coverings for merchandise which is rapidly sorted and delivered, the shed may be one or two stories—in fact, as at Antwerp, may be merely open sheds or roofs to keep off the rain. On the other hand, where goods are to be assembled to accumulate cargoes, it is desirable to increase the direct waterfront storage, and frequently three-, four-, six- and even eight-story warehouses are placed immediately along

the wharf front as instanced by the new warehouses at Rotterdam and Manchester. Frequently much expense in handling goods could be avoided by having available such waterfront storage, instead of requiring, as is common in our American ports, the cargoes to be landed at a wharf and then removed with several handlings to storage houses located two hundred feet to four thousand feet inland.

As to the location of railroad tracks on the wharves, there is much difference of opinion, largely due to local traditions and the failure to recognize that an arrangement efficient in one terminal for certain goods will not answer in another though adjacent terminal where a different class of freight is handled. For example, in the trans-shipping or import-export terminal where there are large movements of bulk freight directly between the railroads and the steamers, unquestionably part of the tracks, at least, should be located directly along the edge of the piers or quays, and cranes or tackle masts provided for the rapid interchange of freight between the cars and the steamer.[1] On the other hand, in city terminals where the land movement of freight is largely by trucks, railroad tracks should be relegated to the convenience of the trucks and placed in the center of the pier or to rear of the quay sheds with frequent track-crossing at grade for the trucks entering and leaving the shed of the trans-shipping or general terminal. Montreal is an excellent example of an efficient pier and slip terminal; and New Orleans, of quay terminal.

In industrial terminals, goods are not to remain on the immediate waterfront longer than necessary, since the raw goods are to be rapidly taken to the factories and the finished articles shipped on delivery. Therefore, every facility should be afforded for the rapid movement of freight between the factories and their storehouses and the wharves. Clear driveways for motor trucks and pier autos should be available and railroads should be placed on the wharves only where they are real adjuncts for the quick handling of local freight. In an industrial terminal the railroad service should be provided with a local classification and switching yard

[1] Even under these conditions, the necessity of customs examination frequently tends to prevent this quick, direct interchange to such an extent that the railroad tracks are better placed behind the landing platform (or away from the pier edge) on which the customs inspection is first made. The elimination of this hindrance to direct interchange of freight between the vessel and railroad is a prime argument for free ports.

having connecting tracks to the wharves, factories and trunk lines. It is especially important that the factories have sufficient railroad sidings connected with the trunk lines, since many of the goods manufactured will be shipped throughout the country and raw goods delivered from the country at large.

Among the most striking examples of industrial terminals in this country are those on the properties of the New York Dock Company and the Bush Terminal Company on the eastern side of New York Harbor. These terminals show wharves served by railroads and backed by warehouses, and behind the warehouses, concrete factories, each served on the one side by railroad spurs and on the other accessible by streets leading to the city proper, and adjacent thereto classification yards with connections to the trunk lines. Equally prominent are the nearby modern flats for the industrial population. Such industrial centers are, in reality, model terminal cities within or adjacent to the city itself, but not so interwoven with the general city activities as to cause expensive congestion in handling in and out raw goods and manufactured articles.

It is well to emphasize here that the surest way to secure for a community permanent and rapid growth in prosperity is to encourage its industrial enterprises. Many cities, especially ports, have had their beginnings and first prosperity in serving as entrepôts. Chicago and St. Louis are striking examples of railroad centers, whose first greatness lay in their being important trans-shipping cities; but today the underlying wealth and prosperity of these and similar inland cities are in their great industrial enterprises. New York, from its early days, has been one of the world's trans-shipping centers, but New York's great growth in wealth and population is derived largely from its being the greatest manufacturing city of this country.

The factories and industrial works in these cities draw a large laboring population—requiring new homes, service, etc.—and are constantly attracting new capital—thus, the cycle of growth is assured. In contrast, Antwerp, before the war, recognized as one of the leading entrepôts of northern Europe, had a comparatively small population and without industrial enterprises was growing but slowly. Even the great port of Liverpool is being overshadowed by the industrial city of Manchester. The economist, there-

fore, should inquire carefully into the present industrial enterprises of the community and eagerly seek for means to expand them along modern terminal lines.

After this summary of the various terminals forming a modern terminal port, there is to be considered the essential for joining these terminals into "a terminal of terminals." The individual terminals must be organized and correlated into the terminal port so as to permit the rapid and cheap interchange of freight. The medium for this interchange is the connecting or belt line railroad running between the various railroad terminals, the maritime terminals and the industrial areas and also reaching into the wholesale and often the retail districts.

Mere points of contact for switching between the various railroads will not serve this purpose. Experience shows that a car starting from a railroad on one side of the city to be switched over the tracks of several other railroads to a factory or pier on the other side will be subject to numerous delays and high charges, but, if a terminal port is served by a belt line—private or public—such local transfers and interchanges are made quickly and at low cost.

The belt-line installation, therefore, is today a recognized and sought for complement of terminal development. One of the great current questions in New York is the proper method of installing such lines to link up the many terminals of this great port—thousands of dollars and years of study and many adjustments and concessions mark the steps of New York's endeavors for this necessity.

New Orleans openly lays much of her recent growth and prosperity to her excellent belt-line service. New Orleans' belt line serves the entire harbor front, taps each railroad entering the city, serves the wholesale district and is now being extended to outlying tracts of land in order to encourage the establishment of manufacturing and industrial enterprises. Of these, New Orleans has comparatively few, and her able citizens have publicly adopted the slogan that much of New Orleans' future and growth depends upon securing factories and industrial centers and that the readiest and surest means of so doing is to expand and improve the belt-line service.

In a paper before the American Association of Port Authorities, the Hon. William B. Thompson, President of the New Orleans Public Belt Line Commission, summed up the meaning of the belt-

line service to New Orleans by stating that before this installation, local switching charges amounted to from $13.00 to $15.00 per car with a delay in many cases of several days at least, whereas, today, the same service is rendered for $2.00 a car flat and is performed quickly and in close coöperation with the shipper's interest. San Francisco and Montreal emphasize what New Orleans teaches; likewise, St. Louis, Cleveland and many of the inland cities show great advancement in prosperity from the dates of their private belt-line installations. Practically none of the great foreign terminal ports in the cities of northern Europe is unprovided with belt-lines. Some of these cities have gone even further, in that they provide not only engines for transferring the cars of other railroads, but provide also cars to be shipped out over the trunk lines. Local enterprises thus have no delay in securing empty cars to send out raw goods or manufactured articles.

In addition to these physical aspects, it is of equal importance, in creating the modern terminal port, to consider the organization for administration and finance, especially of the waterfront or port proper.[2] Experience has shown that it is both impracticable and undesirable to secure the needed correlation of piers and terminals for the modern terminal port by means of private control. If the returns on capital invested are made sufficient to admit private enterprises, port charges then become a burden on the commerce which therefore is deflected to other places. Such terminal organization frequently requires radical changes in the plan of the port and also of the city back of the waterfront, power to make which changes can be rarely delegated with safety to private enterprise. On the other hand, publicly invested capital requires a low rate of interest, especially where a community is to derive great benefits by increased commerce, increased population and increased industrial development—all of which follow closely upon a wise development of port facilities. Further, to public officials under proper control, large legal powers may be safely granted for condemnation, for the organization and operation of terminals and for other port services. These influences and the more or less unconscious realization of the above facts is bringing about a wide demand for the public administration of port facilities.

[2] Excerpts from author's paper on *Port Administration* before the American Association of Port Authorities.

From a broad survey of successful ports it is conclusively shown that continuity of good port policy, consistency in proper port planning and development, and properly used autonomy of port administration are the three administrative essentials for the successful upbuilding of a great terminal port.

Continuity of a good port policy gives to commercial and maritime interests a reasonable assurance that desirable conditions will continue, such as equality in charges, impartial methods of obtaining wharf facilities, similar terms for tenure of piers and wharves and a steady improvement of transportation facilities. These strongly tend to a steady growth of commerce and trade. Opinions will differ as to what constitutes a "good policy." Local traditions, trade customs and laws all tend to modify any standard pattern, but in port administration as in business management the fundamentals are honesty and impartiality.

Consistency in proper port planning and development is somewhat a correlative to continuity of port policy, yet is as essential to the successful growth. If piers are built here, there and everywhere without regard to their purpose, without the means of economic interchange of freight and no systematic provision made for future extension, congestion of the most expensive kind will inevitably result and the free circulation of traffic will be made impracticable.

Autonomy of port administration is requisite, otherwise the port revenues, which are taxes upon the commerce of the country, may be diverted to supply local needs of the seaport town; and, as is too frequently done under inefficient municipal government, so expended as to bring little returns to the community and none to the development of the port facilities. Autonomy of port affairs further means freedom from local politics and tends to insure continuity of policy which otherwise would be changed with each shift of the local government. Unless greatness is thrust upon a harbor by overwhelming natural advantages or by a peculiar combination of financial interests, experience shows that a harbor will become a great port in so far as its administration possesses the above attributes.

Continuity of port policy may be secured, first, and obviously, by a system of port government in which the officials by law or custom hold long tenure of office; second, where the general public

or citizens of the port have a thorough understanding of a correct policy and insist that it be followed. Continuity of port policy in this country has been greatly retarded by the difficulty of securing either of the above conditions. The essential principles of our form of government do not encourage long tenure of office by public officials, even in local affairs. Hence port officials, usually subordinate to municipal or state government, are constantly changing with the political vicissitudes of succeeding elections. On the other hand, the citizens in many of our ports have little direct concern or interest in the development of the waterfront. A large majority of the more influential and intelligent men have their energies directed to the development and progress of their mines, factories and railroads throughout the country and little if any of their time or thought is given to the harbor. Under these conditions a municipality is rarely, as a community, interested sufficiently to insist upon any continuity in the handling of port plans and policies. This is in contrast to many of the continental ports, whose history, growth and business center around the port activities. A large proportion of their citizens in daily business depend directly upon the success of the port for the success of their own affairs. This public interest and the traditional retention of competent officials have made many European ports, despite great natural handicaps, keep place among the great ports of the world.

Consistent and proper port planning is obviously more readily contained where port policy is stable. On the other hand, many cities whose maritime growth is patently suffering from poor administration have adopted and are developing under excellent plans, though in turn their proper physical development suffers in common with the commercial growth from inefficient or changing administration. Progress towards proper terminal development under such conditions may be slow—at times even retrogressive; but even such halting progress shows the great value and necessity for proper port planning.

Complete autonomy of port administration is not found in this country, though every element of administrative autonomy may be instanced by the administrative powers of the various American ports. One port possesses wide discretion as to public organization and operation of terminal facilities; another port

lacking in this respect is authorized to finance its improvements with almost as much power as a private corporation.

As the necessity for scientific management of port affairs is more widely realized by the public, the tendency in this country is to grant wider and more efficient power to those entrusted with port affairs. The governing officials of many British ports are already as free to act in their judgment and discretion as the officials of private corporations. Such ports as Liverpool and Manchester are strong arguments for autonomy in port administration.

These general conclusions and statements relative to port administration form suggestions to the political economist of opportunities for forceful and valuable work to be done.

Space does not permit the illustration of the general principles above outlined by a discussion of the various ports of this country and Europe. Those, however, who are interested in following up such detailed discussions may turn to the various papers by eminent port and terminal authorities published in the Proceedings of the American Association of Port Authorities.

In conclusion—the science of terminal and port planning deserves the most thorough consideration from everyone interested in advancing the social and economic welfare of our great cities; it is a science so young that it affords a wide field in which to win recognition; it needs the ablest of men to set forth its principles and to practice them and above all to arouse the citizens as to the advantage, or rather, the necessity, of appropriating money and time and confidence for terminal projects.

THE WATERWAYS AND COMMERCIAL EVOLUTION

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I. During the forty years prior to 1870, the canal barge and river steamer were potent agencies in the promotion of the settlement and industrial occupation of the national domain and in the creation of wealth by making mutually available the interior resources of a virgin continent and the markets of the world. Still earlier in our history, the economic development of the seaboard country of the East and South was made possible by water transportation, and the growth of population and accumulation of wealth were there geographically correlated with natural harbors and navigable rivers over which goods were moved in domestic exchange and admitted to the channels of foreign trade.

With few exceptions, the great American cities of today owe their relative superiority to natural advantages of location with respect to navigation or to tactical initiative in the construction and use of artificial waterways.

No argument is needed to demonstrate the benevolence of nature toward pioneer industry and commerce in the provision of inland waterways on the continent of North America. Over one hundred streams were adequately navigable to the primitive commerce of the Atlantic slope, and the power development at their fall points was a gratifying stimulus to manufacturing industries which gradually sprang up to add their products to the cargoes of raw materials from the forest and farm.[1] Not counting the Mississippi, perhaps fifty streams having a navigable mileage of over 5,000, nearly equivalent to that of the Atlantic-bound rivers, afforded natural trade routes for the products of the plantation country bordering the Gulf of Mexico. These river channels, together with the favorably disposed coastal waters of the Atlantic and the Gulf, constituted a free and ready-made highway of essential importance during the initial period of the country's development.

[1] Report of U. S. Commissioner of Corporations on Water Transportation, volume I, p. 44.

The Mississippi and its tributaries extend a fanlike structure of waterways from the Gulf almost to Canada on the north, to the Rockies in the northwest, and to the Appalachian hills on the east. It is to be remembered that these streams, fifty-four in all, were substantially and adequately navigable for nearly 14,000 miles for the purposes of such commerce as resulted from a half-century of rapid settlement and industrial growth in the adjacent country. There is no reason to discredit a favorable appraisal of the inland waterways in the days when the greatest American opportunity was cheap and rich valley soils and a flowing highway to tidewater —a fortuitous conjunction of natural resources which for a generation gave virility to the most potent forces of the nation's development.

The Great Lakes, distant only a short portage from the headwaters of the Mississippi and extending their looping shorelines from the center of the continent eastward to the St. Lawrence, unlike the river-ways, have continued to serve the growing needs of commerce with unbroken fidelity. The commercial importance of these inland seas in the past and present is incalculable. That their commercial potentialities surpass those of any commensurate body of water in the world cannot be reasonably disputed.

These three great natural systems of commercial intercourse must have seemed almost ideal to American explorers and early commercial enterprisers. It was the ready service of these waterways that made the industrial conquest of America so easy and so quick. The occupation of Canada must have been quite impossible without the network of lakes and streams permeating almost the entire dominion and more or less closely articulating the Great Lakes with the Atlantic and Hudson's Bay at several points. Pacific coast indentations and the 1,600 miles of navigable rivers made the industrialization of the Northwest possible, and the development of Alaska has been dependent upon river transportation.

II. It was inevitable that the development of a considerable commerce should reveal features of *inadequacy* in the natural waterways. Suggestions for the improvement of navigation facilities and for the "perfection" of the national system of waterways came at an early date. Miles Standish is said to have planned a canal from Cape Cod Bay to Buzzards Bay. It was George Washington who ordered the first survey of the Cape Cod route and thus

launched, over a century ago, the foremost waterway project of the present day—articulation by artificial waterways of the navigable indentations of the Atlantic coast to form a fairly direct and storm-free passage from Boston to Beaufort, North Carolina.[2] This scheme of inter-coastal improvement is now extended to contemplate an Atlantic passage to St. Johns River, and thence across the Florida peninsula to the backwaters of the Gulf. It constitutes one of the three comprehensive schemes of canal construction undertaken by way of "perfecting" the natural waterway system. Considerable public and private money has been expended on this project over a long period of time. Some work has been done on almost every segment of the project, and canals of sorts now occupy the more important reaches along the Atlantic coast, but inadequacy of depth, width, and facilities deprive them of much commercial utility.

Two other canal schemes are so plausibly logical that any intelligent schoolboy may chart their approximate routes on the map: namely: (1) an unbroken channel, or channels, connecting the Great Lakes with the ocean on the east; and (2) the creation of one or more Lakes-to-the-Gulf waterways, via canal and river, from several possible points on Lakes Erie, Michigan, and Superior. Both of these plans have actually been executed upon scales which probably seemed permanently adequate in the days of their inception.

The completion of the Erie barge canal in 1825, economically and practically considered, was doubtless the greatest single achievement in the history of American transportation. A second and less successful route from the Lakes to the Atlantic, via the Welland Canal and the St. Lawrence River, was opened by the Canadians in 1833, and lake navigation was greatly improved by enlarging the Detroit River and the construction of two channels around St. Mary's Falls between Lakes Huron and Superior. Both of the Lakes-to-the-Atlantic routes are now subject to projects of large expansion. The state of New York is just now completing improvements on its barge canal at a cost of $101,000,000. Canada

[2] The Cape Cod Canal has been completed within the year at a cost of $6,000,000. A channel 13 miles in length, 25 feet deep and 100 feet in bottom width brings Boston 66 miles nearer New York by water. Traffic around the cape is said to have averaged 25,000,000 tons and 5,000 passengers annually. Two thousand vessels and 800 lives are said to have been lost off the cape on Nantucket Shoals in 60 years.

is advancing plans for a ship canal via the St. Lawrence of such depth and security as to facilitate movements with one transshipment from lake ports to foreign markets. It is thought by some that the demonstrated superiority of either the Canadian or the New York waterway from the lakes to the sea may finally determine the commercial supremacy of the greater cities of Canada or the United States,[3] and may prove equally important in relation to military and naval strategy.[4]

Four nominal water routes have been opened from the Lakes to the Gulf of Mexico. The ancient canoe route of the voyageurs from Green Bay to the Mississippi, via the Fox and the Wisconsin, is now "improved" by a canal cut through the old portage near the site of Fort Winnebago in Wisconsin. Two canals, which have rendered some commercial service, cross the state of Ohio from Toledo and Cleveland on Lake Erie to Cincinnati and Portsmouth on the Ohio River. A fourth opening to the Gulf was effected by canalization connecting and improving the Chicago and Illinois Rivers, with a branch from Hennepin near the head of the Illinois to Rock Island on the Mississippi. Chicago has recently expended $55,000,000, the immediate consideration of which is a matter of the city's sanitation, but which contributes directly to a deep commercial waterway on the old Illinois and Mississippi route to the Gulf. The chief elements of this project are the improvement of the Mississippi River, the opening and maintenance of navigable depths in its tributaries, and the provision of terminal facilities, in all, sufficient to constitute a canal and river system, including a trunk line with properly functioning feeding and distributing branches having standardized navigable depths.

The Mississippi River highway served the commercial needs of the country in an increasing measure until about 1879. In that year one and one-fourth billion tons of freight moved by water in and out of St. Louis. Traffic on the Missouri and the upper Mississippi had then been declining for a decade. Thereafter, the lower stretches of the stream were gradually abandoned until the tonnage of the packet lines has become a negligible factor in American transportation.

After an epoch-making service in the national development

[3] Quick, Herbert: *American Inland Waterways*, p. 20.

[4] *Ibid*, p. 26.

from 1825 to 1862, the Erie Canal lost prestige to the railways, declined rapidly from 1872 to 1877, and suddenly advanced its traffic to the high mark of seven and a quarter million tons in 1880. Since that time traffic on the Erie has declined to a half-million tons. Whether the effect of the virtual reconstruction of the canal will be the rehabilitation of its old-time relative efficiency as a shipping agency is uncertain.[5]

The shallow channels which were designed to connect, commercially, the Great Lakes and the Mississippi were delayed in their construction beyond the time of their possible usefulness. Being thus still-born in an era of railway ascendency, they have served no higher purpose than to testify to the engineering possibilities of their construction and to exemplify the tendency to obsolescence and inadequacy of means of transportation once thought to be permanently sufficient to the needs of the country.[6] The great river highways, with the exception of the Ohio, reached the summit of their usefulness forty years ago, and, perforce, have given way to the apparently cheaper and more efficient railway.[7] Today scarcely a vestige of their former commercial activities remains.

III. The decline of water transportation and the supercession of the railways are due to a number of phenomena which may be designated under three rather closely related captions.

1. *Inadequacy*. Industrial and commercial development has resulted in transportation needs for which existing and potentially possible waterways afford inadequate service.

[5] The reconstruction of the Erie Canal was undertaken in 1902 with the expectation of recovering the wheat traffic from the Lakes to tide-water. This hope has already vanished. (Hepburn, *Artificial Waterways of the World*, p. 100.)

[6] The opinion of Dr. Moulton in *Railways vs. Waterways*, p. 465, is significant! . . . . "While canals satisfactorily served the needs of an earlier period, their day, like that of the sickle, the hand-loom, and the spinning-jenny, is now forever past. Precisely as the canal supplanted the horse in the carriage of through freight, so in turn has the railway, in the course of industrial progress, come to take the place of the canal in the field of transportation."

[7] "River transportation is usually analogous to that by canal, for comparatively few of our streams are really natural highways of commerce. As a rule they are navigable for the purposes of modern transportation, in name only, rather than in fact. So long as the cost of canalization of a river amounts to forty, sixty, or a hundred thousand dollars a mile it belongs in the same category as a canal." *Ibid*, p. 457.

2. *Obsolescence.* The demonstrated physical and functional superiority of railways, particularly with regard to services highly adapted to certain conditions and classes of traffic, established the reciprocal obsolescence of waterway facilities with the advance of traffic needs.

3. *Unfair competition.* Scientifically uneconomical, but effective methods resorted to by the railways to secure traffic in the handling of which they were not necessarily more efficient than the waterways previously enjoying the business, doubtless hastened the destruction of the packet lines.

These forces of inadequacy, obsolescence, and unfair competition, operating under the rather favorable dynamic environment of frontier conditions, have slowly and effectively backed the once prosperous barge and packet operators and optimistic canal promoters into the bankruptcy court and scraped their business and investments, and have concurrently established in their stead a railway system which, taken as a unit, is more extensive and elastic, and which has doubtless rendered a higher average of service at a lower average of cost.

It is significant that, in their organization and administration, the railways have entrenched themselves behind the natural monopoly of the field which they occupy in certain districts, and their technical superiority in the movement of passengers and particular types of freight; and from this position of vantage have unrelentingly refused to coöperate in a division of the traffic or other complementary service, and have persistently refused to admit the possibility of any scheme of joint operation of railways and waterways which might result in a greater efficiency than that of the railways acting alone.[8]

In order to clarify certain economic aspects of the relations between railways and waterways, and to partially establish premises upon which a public waterway policy may be defined, a brief

[8] Seeming exceptions to this position appear in the attitude of Mr. Hill, of the Great Northern (Chicago Address, Oct. 8, 1908), and Mr. Ripley, of the Santa Fé, (*Atlantic Monthly*, Jan., 1911). They have verbally supported the deep waterway movement and rail and waterway coöperation. Mr. Hill is reported to have said on an earlier occasion, that he "could make railway rates to the Pacific Coast so low that the Panama Canal would grow up to pond lilies; and that, before the Mississippi River could compete for traffic with the railways, its sides and bottom would have to be lathed and plastered."

analysis of the above-mentioned causes of railway ascendency is necessary.

With regard to the inadequacy of water transport, it is commonplace to observe that the wider distribution and intensification of industry, and the centralization of markets normally attending a rapid growth of population in a new country, are reflected in the volume of goods to be moved, and consequently, the primary test of the adequacy of a transportation system is its adaptability to such growing and varied demands, and this in advance of the actual development of the heavier traffic. The apparent inadequacy of the waterways to move the potential products of rapidly developing industries first invited railway construction, not as a competitive or cheaper means of transport, but as a much needed supplementary carrying device.

The degree of obsolescence inherent in means of water transportation is a matter of unfavorable comparative efficiency. When production and marketing become highly specialized, when distributing distances are great, when materials of commerce assume characteristics of complex processes of production, high specific value, and seasonal utilization, when the efficacy of working capital and availability of credit facilities demand rapidity and certainty in all the processes of production, distribution, and marketing, then, speed, safety, and regularity of transit assume relatively greater importance. In other words, service standards are determined by industrial conditions and constituted of celerity, regularity, and security; and the rate is a derivative of the service—being based either on the value of the service or the cost of the service.

Obviously, the waterways are functionally and permanently obsolescent with regard to certain kinds of traffic regardless of what rates they may offer. Having, perforce, surrendered a part of the traffic to supplementary and superior rail facilities, the law of decreasing unit costs operating in the railway business may justify carrying the remainder of the traffic by rail, as secondary traffic, on the rate principle of the *additional cost of the specific service*, thus, characterizing as obsolesent the entire waterway system as a carrying unit. Furthermore, if the decreasing unit cost, under the operation of the law of increasing returns, was justification for a total paralysis of the waterways; conversely, if a state of increasing unit costs, or the operation of the law of decreasing returns, should fall

upon the railway system, a rehabilitation of the waterways might logically be in order, as a supplementary device to relieve the overstressed railways. There is evidence sufficient to suggest the possibility of such an eventuality.

Superior railway organization and intercorporate relations between great railway, banking, and industrial corporations constitute another element contributing to waterway obsolescence with reference to administrative efficiency, finances, and traffic development.

In the minds of friends of the waterways and many non-partisan students of American transportation, unfair competition is the chief engine of destruction which has been successfully operated by the railway corporations in reducing waterway traffic. The enumeration of certain well-known railway policies in their conduct toward waterways is sufficient to establish the premises if not the conclusion of this thesis.

The deliberate cutting of railway rates below average unit costs, and even below the operating costs of the service, upon certain classes of traffic and within certain districts subject to water competition, the deficit being made up on non-competitive traffic and in non-competitive regions, has been and still is a common practice.

The policy of railways in acquiring ownership of shore lands so located as to constitute necessary and convenient boat terminals has placed many dockage sites essential to waterway development in the control of the railways. Boat lines operating in the lake and coastal trade are now seriously hampered by this dog-in-the-manger policy of the railways.[9]

Purchase of rival canal routes and of essential segments of canal and river lines offering possible competition has enabled railways to throttle water traffic by maintaining prohibitory canal tolls and arbitrarily closing water routes. Like results are said to have been accomplished by the payment of an annual subsidy by the trans-continental railway lines to the Panama Railroad in consideration of the maintenance of a scale of rates across the isthmus on certain forms of ocean-to-ocean traffic sufficient to divert them from the coasting vessels to the all-rail haul.

[9] Moulton, *op. cit.* pp. 82–83. Quick, *op. cit.* 109 *et seq.* Bradford, *The Annals of the American Academy*, Vol. 55, p. 240.

The studied refusal of railways to enter into traffic agreements or to coöperate in any way with independently owned water lines is the most vital and conspicuous form of unfair competition. Railway managers have been particularly careful to avoid any demonstration of the doctrine that rail and water facilities may be so correlated in their functioning as to render an improved or extended service at a decreased joint cost.[10]

What may properly be considered "unfair competition" is a question which might profitably receive scientific definition before final measures are taken in the formulation of waterway policy. There is reason to distinguish clearly between the attributes of private business and public business in the delimitation of *fair* and *unfair* competition. In the opinion of the writer, the application of the "additional cost" basis of rates has been and now is being carried into the field of unfair competition and was so used to divert traffic from the waterways.

IV. During the forty-year decline of boat traffic, many plans have been put forward and many arguments have been advanced looking to the construction and maintenance of an effective system of inland water highways. Domestic ocean transportation is in much the same category as canals and rivers, traffic by water between the Atlantic and Pacific coasts having declined since 1870.

Excepting the construction of the Panama Canal, the policy of waterway development cannot be said to have been seriously and systematically entered upon by the government; nevertheless, congressional appropriations for river and canal works have recognized the political, if not the economic, justification of almost every waterway project which has been advanced. The magnitude and disposition of such appropriations of public funds have long been a spectacle of national prodigality not clearly understood by those unfamiliar with political motives back of "pork barrel" legislation. Granting, for the moment, the beneficence of a policy of waterway development, there is no greater obstacle to its serious promotion than the traditional prostitution of waterway projects to the political pirates who customarily derive their sustenance from the congressional pork barrel.

Federal expenditures on river improvement since 1790 amount

[10] Van Hise, *Conservation of Natural Resources*, p. 170—Commissioner of Corporations, *Op. cit.* Pt. II. p. 257.

to over $300,000,000, composed mainly of the rapidly increased appropriations of the last twenty years.[11] Disregarding river improvements by the states, which have cost considerable, canal and river work in the United States has cost over $600,000,000—more than the total cost of waterways in France and Prussia combined.[12]

Before undertaking a survey of the economic aspects of nation-wide waterway improvement, a brief characterization of the more important projects which are receiving vigorous support and most of which seek public aid is in order.

1. The above-mentioned inter-coastal ship passage to extend from Boston to the Gulf of Mexico may be completed at a probable cost of $100,000,000. Certain segments of this passage might be operated independently with reasonable chance of commercial success; however, the rapid construction of the entire project and its operation as a unit seem necessary to develop its highest efficiency as a transportation agency.[13]

2. The much discussed Lakes-to-the-Gulf waterway, via the Chicago drainage canal and the Illinois and the Mississippi rivers, if standardized at the present depth of the Chicago canal (twenty-four feet), would cost about $200,000,000. An eight to fourteen foot depth which is favored by the engineers would cost much less.[14]

[11] Hepburn, p. 136. *Report of Chief of Engineers U. S. Army 1914*, pp. 28 *et seq.*

[12] Moulton, *op. cit.*, p. 68.

[13] In 1913, $500,000 was paid by the federal government for private rights in the old Delaware and Raritan Canal; furthermore, measures looking to the construction of a ship canal 31 miles in length across the state of New Jersey at a possible cost of $15,000,000 seems fairly well advanced.

The purchase of private rights in the Delaware and Chesapeake route and the construction of a 30-foot ship canal at a cost of $17,000,000 have been recommended by the Army engineers.

A channel connecting Chesapeake Bay and Beaufort Inlet, N. C., via Albamarl and Pamlico Sounds, 200 miles in length, would cost $2,500,000, if 12 feet deep, and a ship canal would cost $35,000,000. Private rights have been acquired by the government and the work is under way.

An inter-coastal waterway having a minimum depth of 6 feet now extends a distance of 300 miles along the coast of Georgia and the Carolinas, and canals of like depth reach three-fourths the distance from Jacksonville across Florida towards the Gulf.

[14] In addition to the work done in Illinois, the Mississippi below the mouth of the Ohio is under improvement. $3,750,000 is allotted for 1915. (*Report of Chief of Engineers U. S. Army, 1914*, pp. 919 *et seq.*)

3. The improvement of the Mississippi, as an operating unit, must properly include the rehabilitation of navigation on the upper Mississippi and the Missouri, in addition to the improvement of the Ohio and the lower Mississippi where considerable traffic of a distinctively local character is now moved by water. Improvements on the lower Mississippi would not involve a large initial outlay, but the annual maintenance cost would be heavy.[15] To open the channel from St. Louis to Minneapolis and St. Paul, would cost twenty to fifty million dollars according to depth. To canalize the Ohio from Pittsburgh to Cairo to a depth of nine feet will cost $60,000,000.[16] A twelve foot depth on the Missouri from St. Louis to Sioux City would cost forty to fifty millions and a somewhat shallower channel to Fort Benton would add an equal amount.[17]

The entire Mississippi system project centering upon St. Louis, and extending its navigable trunks to Fort Benton at the head of the Missouri, to the Twin Cities near St. Anthony Falls on the upper stream, to Pittsburgh on the headwaters of the Ohio, to New Orleans at the Delta, and including a ship channel from Chicago to the Gulf, would probably involve an initial outlay of $500,000,000. If the advice of the engineers against the construction of a ship canal be followed, and a barge-channel depth through the valley be substituted, the total cost might be as low as $300,000,000.

[15] Work necessary to be done on the lower Mississippi in the maintenance of navigation will largely depend upon what is done toward the prevention of floods and erosion on the upper reaches of that stream and its tributaries. Flood protection and the development of water power may be correlated with the improvement of navigation and, to a considerable degree, the necessary cost of either may be made a joint expense.

[16] Over $6,000,000 has recently been expended in the improvement of the upper Mississippi; $1,200,000 is allotted from the federal appropriation for 1915.

The canalization of the Ohio from Pittsburgh to its mouth was approved by Congress in 1911 and the work is well advanced. The Ohio is the one river which has shown an appreciable increase in traffic during recent years, due to its unique location with relation to the coal fields.

[17] The engineering problem of reclaiming the Missouri is said to be the most difficult of the entire inland waterway project. A considerable period and high cost of maintenance for a number of years would be required to confine the stream to a permanent channel. The relative usefulness of the Missouri would seem to be commensurate with the higher costs of improvement. For many years during the height of river navigation, the Missouri carried more traffic at St. Louis than moved on the Mississippi both ways from that port.

The engineering problems involved are not particularly difficult, but the maintenance costs during the earlier years, especially on the Missouri, would be large.

4. Although the state of New York has about completed the main work, in the reconstruction of the Erie Canal, and despite the existence of a ship channel of sorts through Canada, via the Welland Canal and the St. Lawrence River, the provision of adequate navigation facilities between the Great Lakes and the Atlantic has not yet matured from project to realization. The terminal facilities and operating efficacy of the New York canal are still largely in *prospect*. In electing to reconstruct the barge canal rather than venture the opening of a ship channel from the Hudson to the Lakes, New York left Canada without competition in the promotion of a ship channel from the Lakes to the Atlantic. Canada has in prospect the improvement of the St. Lawrence route to provide a safe and convenient ship channel to a depth of twenty-five feet. Canada seems also seriously to have undertaken to open an easy passage from Georgian Bay, via French River and Lake Nippissing, to Ottawa, on the Ottawa River, and thence to Montreal, Quebec, and the Atlantic. Canada has also cut the narrow ridge dividing Lake Huron and Lake Ontario, thus creating a direct east and west passage from Lake Superior points to the St. Lawrence and almost a great-circle water route through Canada from Lake Superior and Lake Michigan ports to the markets of Europe.[18]

The foregoing characterization of the rise and decline of the waterways and of measures in project for their rehabilitation is probably trite to many readers. However, the iteration is hazarded as a basis of reasoning, which must be more or less *a priori*, as to the potential commercial and social functions of waterways if projects for their development are consummated. The rôle which waterways once played in the business affairs of the nation is, in this connection, of no great significance; but the motive forces which have placed railways in the ascendency and effected the commercial evacuation of the waterways are matters of interest, particularly as to the likelihood of their perpetuity. In other words, we may wisely inquire whether the facts of inadequacy and obsolescence of water transport and the converse qualities of

[18] Quick, *op. cit.*, Notes c and d, p. 216.

elasticity and efficiency of railway service are technically inherent and continuing, or whether economic development and industrial maturity may make way for a renewed functioning of waterways, either independently of or in physical coöperation with railways.

Summarizing the discussion to this point, we have indicated the very superior natural facilities of North America for coastal and interior water transport, and the adequacy of such waterways, with the aid of inexpensive additions and improvements, to facilitate primitive industry and trade and thereafter to attract a constantly increasing tonnage for many years in active competition with railways. The direct causes of the decline of water-borne traffic are found to reside in facts of industrial evolution and railway development which clearly indicate the physical and functional shortcomings of a system of inland water transportation when operated as an independent transportation unit. Finally, an examination of the more comprehensive projects for the improvement of navigation along lines designed to free the waterways of the commercial palsy of inadequacy and obsolescence justifies the conclusion that the development and maintenance of navigable waterways are physically possible at a relatively low initial cost (less than $1,000,000,000) in comparison with the amount said to be required by the railways (five to ten billion dollars) for necessary extensions and betterments within the next decade.[19]

V. It remains to consider the possible benefits of a thoroughly developed and properly organized system of inland water carriers, and, in so doing, to keep in mind the essential dynamic motive of industrial evolution; namely, that the population of this country is growing at the rate of two per cent a year and that the concurrent growth of the social demand for facilities of commerce is three to five times as rapid.[20] It may also be emphasized that under possible

[19] Hill, New York Address, Dec. 19, 1912. *Railway Business Association Bulletin*, Feb. 23, 1912.

[20] "In the ten years between 1895 and 1905, the railroad mileage of the country had increased but 21 per cent, while the passenger business had grown 95 per cent and the freight business 118 per cent. By the decade ending in 1907 the increase of mileage as compared with 1897 had crept up to 24.7 per cent; but in the same time the increase in passenger business had leaped to 126.1 per cent, and that of freight traffic to 148.7 per cent." (Hill. Chicago Address, 1908.)

conditions waterway development need not be a hostile demonstration toward railways as a whole, but may be so timed and so directed as to afford a complementary transportation service and, in the long run, prove a boon rather than an injury to private interests involved in the railroad business.

The two doctrines most vigorously advocated by partisans of waterway propaganda are quite fallacious, and so obviously so that their proclamation is doing more to impede the progress of a scientific waterway policy than to advance it. I refer (1) to the argument that the maintenance of navigable waterways, even though they carry no traffic, is a justifiable and expeditious means of "regulating" railway rates; and (2) to the unsupported assertion that waterway development would make transportation so easy and so cheap as to materially reduce the present cost of living and stimulate industry by decreasing the cost of materials.

In support of the claim of regulative benefits of water competition upon railway rates, attention is customarily directed to low rates in the South resulting from the existence of used and unused water routes. It is true that through-rates and some local rates are very low in the South under the operation of the basing point system which is an outgrowth of water competition. It is also true that the deficits in service costs in this cheap traffic are made up by excessive railway charges in other districts and serious regional discrimination results. It may confidently be asserted that the least reasonable and satisfactory rate systems and the greatest obstacles to scientific rate control exist in districts where actual or potential water competition has been a factor in railway rate making.

If the conditions of water competition could be made universal, some semblance of logic might support the doctrine of automatic rate control by rail and water competition; but to develop waterways, considering their necessary geographical limitations, in the expectation of lowering rail rates by competition, or even with the intention of permitting unrestrained competition between rail and water carriers, would be industrially and commercially destructive. Adequacy of the transportation system, the quality of the service, and non-discriminatory charges are of much greater economic import than the gross amount of the rates. Furthermore, the idle investment of a billion dollars in order to reduce the earnings of an active investment of $20,000,000,000, in these days of cost ac-

counting and scientific methods of service standardization, approximates mental simplicity—a procedure somewhat analogous to the purchase of a dog to chase one's own chickens out of one's garden —a policy rather destructive to all useful elements concerned, as well as expensive. The reasoning might be different in case the provender seeking fowls belong to a neighbor and the line fence is down.

It is doubtful if any contemplated scheme of transportation development, other than better wagon roads, can materially reduce transportation costs. A reasonable defense of any project resides in its probable effectiveness in providing and maintaining adequate service, a requirement which the railways are not always able to meet, and in maintaining rates at something near the present level, with a minimum of uneconomic discrimination.

The admirable study of Dr. H. G. Moulton[21] leaves no room for intelligent controversy as to the relative unit costs of rail and inland water transportation. The foundation of the popular fallacy of cheap rates by water resides in the fact that some few natural waterways are readily navigable without any considerable expense for improvements, and in such cases fixed costs may be so inconspicuous as to make transportation rates on such traffic as is adapted to the service very low. This is true of lake and ocean transportation on long hauls, and of a very few river and canal routes. Again, a desultory, irregular, and unorganized water service may be afforded at times and places and to certain commodities at rates lower than rail costs. But when sufficient capital is invested to insure reasonably adequate and regular service by river or canal, the experience of the world fails absolutely to support the claim of lower costs of water transportation *if interest on capital invested is included in the cost of the service to be covered by operating revenues.*

Excepting in the Netherlands, the canal and river systems of Europe are considered successful when the earnings are sufficient to compensate operating costs with a possible slight contribution to maintenance. Ordinarily, there is no return at all to the public capital expended in development and maintenance.

In France and Germany, both privately and government owned railways are operated at a profit, allowance being made for interest. The waterways are constructed at public expense and largely main-

[21] Moulton, *op. cit.* p. 455 *et seq.*

tained by taxation. Water rates on certain traffic are attractively lower than rail rates, and in some instances traffic is driven from rail to water routes by legally enforced prohibitive rail rates. In this situation, Dr. Moulton sees only poor economics and mistaken public policy and advocates the evacuation of the waterways. In the opinion of the writer, there is reason to doubt the validity of this conclusion. But Moulton has established beyond peradventure that there is little probability of lower average transportation costs as a result of improved water transportation.

VI. Disregarding the probability or improbability of lower rates, there is evidence of possible beneficence of a progressive waterway policy in the United States, and such evidence bears promise of increasing weight with the flight of time.

First. There are indications of the approaching maturity and inelasticity of the railway system and its consequent failure to meet future demands of commerce unless relieved or deprived of certain classes of traffic which are absorbing a rapidly increasing amount of operating capacity.

Second. Public outlays for permanent improvements are not properly to be considered as being in the same category with private investments, particularly, with respect to expected dividends and the inclusion of *interest* as a cost factor in the calculation of rates to be charged for public services. This being granted, waterway development may be justified in spite of the improbability of commercial revenues sufficient to cover *costs*, including interest.

Third. Sound public policy in flood prevention and water power development may dictate such measures as will make navigation a coördinate, or possibly secondary, object of stream control; thus materially reducing the capital costs of development and maintenance chargeable to any one purpose.

During the autumn and winter of 1906 and 1907, there occurred an unprecedented congestion of railway traffic in the United States which, although partially due to poor operating management, was indicative of possible physical traffic limitations of the railway organism. There have been recurrences of traffic congestion less severe than that of 1907, but of sufficient frequency and magnitude to hamper commerce and to cause considerable anxiety among thoughtful railway managers as to the future performance of the railway system. Traffic congestion does not mean merely an ex-

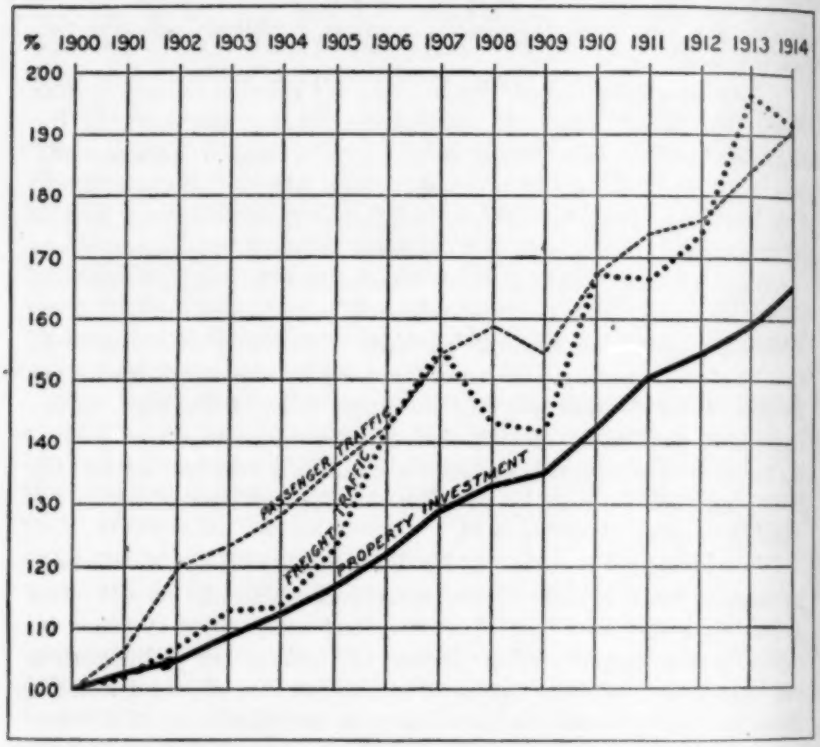
cess of freight above the maximum capacity of the roads, but also a partial paralysis of the entire system and a general reduction of efficiency in handling business. No one cause is sufficiently conspicuous to suggest an effective remedy by reinforcement or improvement of the existing system. At times, car shortage is the predominating symptom, at other times it is motive power that is inadequate, and most frequently, perhaps, terminals and transfers are jammed.

Measures have been taken to bring the existing railway system to its highest efficiency by strengthening the weaker parts of the organism and by developing a highly coördinated management. But such measures are of temporary relief only. Careful observation leads inevitably to the conclusion that the railway mechanism of the country has reached that point in its development where increased capacity and efficiency can be secured only by physical additions amounting to "reduplication"—the construction of an additional operating unit of physical dimensions comparable to that of the present. This would not mean any considerable extension of the railway net, but the duplication of trackage, equipment, and terminals. To this end, railway financiers are endeavoring to raise new capital at the rate of a billion a year and are frankly justifying their purpose by proof of the physical inadequacy of the existing railway establishment.

The strongest proof of this condition of the railways is evidenced by the fact that, in recent years, additional traffic has been handled at an increasing unit cost of service, and the relative increase extends to every important cost factor, *i.e.*, investment, maintenance, and operation. This is the most significant fact of recent railroad history. The railroad business has been considered one of decreasing unit costs, and competitive and developmental rates have customarily been made very low upon the theory of lower costs of additional service. Traffic and revenue statistics submitted by the thirty-five railway systems of the East and Northeast, and substantiated by the investigations of the Interstate Commerce Commission, in the so-called Five Per Cent Rate Case before the Commission in 1914, afford startling evidence of the status of the railways. The statistical charts reproduced in the notes below clearly indicate that the railway establishment of the most highly developed industrial district of the nation has passed the summit of efficiency,

and, since 1906, has experienced a functional decline known in economic parlance as the state of *decreasing returns*, or, conversely, *increasing costs of production.*[22]

CHART G.—*Comparison of increases in property investment and traffic, 1900 to 1914, inclusive, for all 35 systems.*

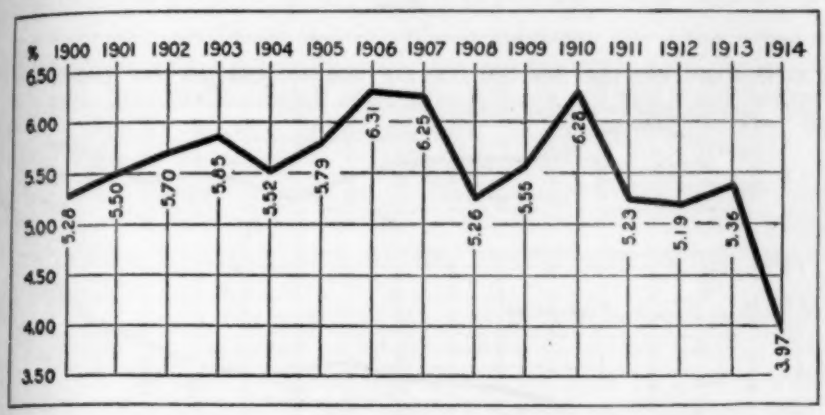


[22] Charts G and H indicate an increasing proportion of traffic growth to investment growth from 1900 to 1907, and, thereafter, a notable decrease in additional traffic and income relative to concurrent investment which is most apparent during 1914.

Chart N effectively illustrates the relative increase of the several items of operating and maintenance expense in contrast with concurrent revenues.

Although correction should be made for increased cost of labor and materials, and possibly for taxes, before such statistics are accepted as evidence of the operation of the *law of decreasing productivity*, the correction is not sufficient to materially modify the character of the revenue and expense ratios, or to invalidate the implications of the chart.

CHART H.—*Ratio of net operating income to property investment for all 85 systems.*

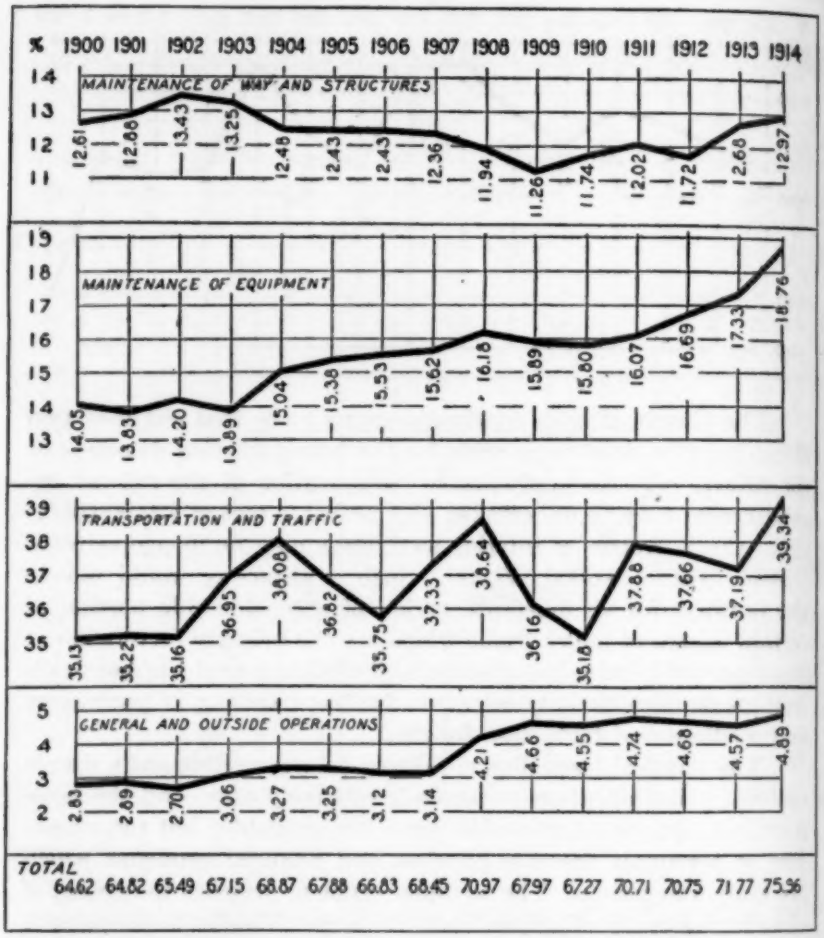


The almost obvious conclusion seems to be that either of two things may be done to provide for the transportation demands of the future. (1) An approximate reduplication of the railway establishment may be undertaken at a probable cost of $20,000,000,000. (2) A system of interior waterways may be developed at a possible cost of $1,000,000,000. Such a waterway would relieve the railways for an indefinite period of a considerable portion of certain classes of bulky traffic which are the primary factors in car shortage and terminal congestion, and would leave the present railway mechanism entirely adequate for the handling of passengers and medium and high class freight.

The physical feasibility of railway enlargement is not a simple matter. Multiplication of tracks is relatively easy, and the same is true of equipment, provided funds are available; but the expansion of terminals presents physical and financial problems which are truly staggering. The terminal problem presents the choice of abandoning terminal properties in the larger cities for more spacious locations or the forcible expansion of city terminals by the clearing of intensively occupied areas of urban land. Electric equipment and underground and overhead passage afford a tremendously costly and, at best, temporary palliative.

Low class freight which may be afforded a reasonable service by water carriage should not longer be permitted to absorb the capacity of railway facilities which are dangerously threatened with

CHART N.—*Ratios of groups of operating expenses to operating revenues for all 35 systems.*



Above charts are reproduced from the findings of the Interstate Commerce Commission *in re* Investigation and Suspension Docket, No. 333, Rate Increases in Official Classification Territory, Dec. 16, 1914.

inadequacy. Fuel, building materials, and some farm crops are admirably adapted to water transport. The annual growth of such traffic is large. It insures a ready demand for water transport and may be desirably eliminated from long-haul rail service.

The development of waterways as a secondary means of transport seems entirely logical. Rivers and canals would cease to be actual or potential competitors of the railways, but would be coördinated with them to form one organic economic unit, the same coöperative devices being used to coördinate rail and water transportation as are now in effect among rail carriers. Adequacy of service and the approximate maintenance of the existing level of transportation rates would be the result, rather than lower rates as prophesied by some visionaries, or the unavoidably higher rates which are rapidly becoming necessary to sustain the higher costs of railway operation.

If, as some contend, railways may be provided to handle all the traffic of the future at rates commensurate with those of the present, the only justification of waterways must be a lower cost for water transport. If this position is correct, the canal and river systems of Europe, rather than being an asset as is generally supposed, are a social impediment, parasitic upon industry and representing a loss of capital equal to all outlays for construction and maintenance plus compound interest on the amount and augmented by a considerable waste during each additional year of operation. But a correct principle of cost determination, as applied to rail and water services, with a proper regard for the respective public and private interests concerned, may give the matter another color.

Transportation is a quasi-public business, with increasing emphasis on the *public* element of the hyphenated adjective. The quality of the service is distinctively a matter of the public interest to be officially determined. The cost of the service is a matter, primarily, of private interest properly to be reflected in rates sufficient to constitute just compensation for capital and labor utilized in creating the service required. The mere magnitude of a business may become so great as to establish a public interest, in addition to service requirements, in such features, for example, as the incidence of the rates and the source and methods of accumulation of capital.

Railway capital is already so great as to absorb a large measure of the total social wealth. The imminent enlargement of the railway plant, in the absence of waterway facilities, will doubtless involve the fixed investment of one-fifth to one-fourth of the nation's capital resources. The segregation of so much capital in any one public service industry of unified management is cause for the exer-

cise of a public interest in the capitalistic features of the transportation business. Now, the railway companies may or may not be able to secure the requisite amount of new capital. In the latter instance, the whole transportation establishment is headed toward government ownership—for government can always raise *funds*. But granting that additional capital may be had, interest charges will become higher on all capital when the new securities are placed. The higher rates will be necessary to attract new capital to the railways, to divert old capital from other enterprises, and to induce saving and investment by persons not sufficiently thrifty to acquire capital at the premium afforded by existing rates of interest.

It is well understood that government can raise capital much easier and cheaper than can the most favorably considered private corporation. Government can borrow at rates one-fourth to one-third lower than can railway companies. Furthermore, funds realized from the sale of government bonds are not withdrawn from industry nor were they, as a rule, available for industrial investment. Government may raise funds by taxation without creating any obligation beyond the employment of such funds in promoting the general welfare. In this it is interesting to observe that the collection of a tax may actually create capital and induce enduring thrift when the interest premium on saving may do neither. It is indeed probable that the large proportion of the total public revenues, approximating $3,000,000,000 annually, represents private savings which would have been thoughtlessly spent for non-essentials in the absence of tax requirements. There is little doubt that the sinking-fund tax levied to retire the Civil War bonds resulted in a net addition to the nation's wealth to the amount of the bonds and interest. The French learned to save while being taxed to pay the German indemnity of 1870 and have been saving ever since. Given a certain standard of well-being, a people may actually be taxed rich, provided public funds thus accumulated are properly disposed—like life-insurance, which involves the identical principle, the benefit may go to the next generation.

We are forced to the conclusion that, if the capital necessary for the absolute requirements of railway enlargement is raised by the ordinary methods of private finance, there will be created a shortage of funds in other businesses, an increased interest rate on capital, and consequent depreciation of all outstanding securities,

and, finally, railway services will be produced at a higher cost and sold to the public at higher rates.

An equal capital could be raised by government without financial proselytism, without disturbing the normal distribution of new capital, without materially advancing the interest rate or disturbing security values, and probably in such a way as to materially increase the private and social wealth of the country. But the investment of public capital raised by bond issue or taxation in railway construction would be a long step toward government ownership, indeed, this fact is the strongest argument in favor of government ownership. In the absence of a desire to accomplish public ownership of railways, it seems the part of wisdom to stabilize and secure private interests as they now are and to utilize the superior financial facilities of the government to supplement the existing rail mechanism of transportation with government-owned waterways subject to regulated use by privately owned boat lines.

The *reasonableness* of water rates may be judged on an entirely different basis than that of rail rates. In the latter instance, private capital requires remuneration on a scale necessary to induce saving and investment as against the ever-present alternative of pleasure-spending. Public capital may be sufficiently compensated in the promotion of economic opportunity or other attributes of general welfare resulting from its employment, regardless of any immediate or direct value return. The primary *interest motive*—the personal reward of saving—is largely absent in matters of public investment; and waterway rates may properly neglect the interest factor in the determination of the cost of the service.

VII. The improvement of navigation as a logical concomitant, or even as a by-product, of power development and flood control is not so remote or inconsequential as may at first appear. The expenditure of large sums in flood prevention on streams of actual or potential navigability is imminent and imperative. Hydro-electric development on a grand scale is a certainty of the next decade or two. The result of both will be a marked improvement in the regimen of many streams subject to navigation. Power development, together with navigation facilities, will tend to a decentralization of industry and population and a redistribution in harmony with economic opportunity as determined by the natural location of the resources and agencies of production.

Railway enlargement means the aggravation and intensification of the social and economic diseases of concentration. Unless new routes and terminals are established, which is improbable, population will continue to concentrate at existing terminals and industrial points along the railway lines. The very nature of railway service and railway rates exerts a constant pressure cityward. Social hygiene may be "far fetched," in the minds of some, when admitted to a discussion of industrial development. To some of the others of us, it is preëminently relevant.

Finally, if there still be reason for doubt as to the financial feasibility of waterway development, let us consider that the customary "pork barrel" appropriations of Congress amount to not less than five per cent annual interest on $500,000,000. The rivers and harbors pork barrel will never be destroyed until the excuse for its existance is disposed of. The application of one-half of that $500,000,000, together with an equal amount to be supplied by the willing localities of the Mississippi Valley, to perfect in detail the Mississippi, Missouri, and Ohio Rivers projects, and the Lakes-to-the-Gulf canal project, would be a beneficent measure, even if the resulting waterways should prove financially unprofitable as means of transportation.

THE RECONSTRUCTED CITY

By J. Russell Smith, Ph.D.,
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When an architect builds a factory, he lays down upon the table before him a list of the various things the factory is to do, and then proceeds from these known needs to create a structure which will best meet them. It seems peculiar that, despite our thousands of years of experience with cities, there has been so little attempt to apply large scale planning to the idea of the city as a functioning unit and lay it out accordingly. Is it any more desirable that a city should grow indefinitely large than that a man should grow indefinitely large? Perhaps most of us as little boys have wished the wish of fairies that we might be as big as a giant so that we might pick up certain undesirable persons and put them between our fingers and place them where they belonged. Is the world-wide desire of cities to grow big, big, big, any more sane? My answer is emphatically "no." A city is to perform certain functions, and when it is big enough to perform those, additional size is of no more value than an additional one hundred pounds is to a man who already weighs one hundred and eighty.

The World's Greatest Town Planner.

Mr. Ebenezer Howard, an Englishman, sat down and drew up the plans of an ideal city. He first analyzed the proposition. The city affords to its inhabitants the social opportunity of numbers, to the factory the labor market of numbers, but it tends inevitably to crowd. On the other hand, the advantages of the country are cheap sites and room to grow things in the yard and garden, room to play, fresh air, and nearness to food supplies, but lack of social and employment opportunity. Then having put these things down on the table, he proceeded to plan a city which swung around the cardinal principles of (1) having all the inhabitants so placed that they were so near their factories that they could walk to their jobs, (2) so near to open space that they could easily walk to the farms, fields, and playgrounds, yet (3) sufficiently numerous to make the labor supply for factories which pro-

duce. This after all is the object of the city. These ends can only be attained by having a definite size for the city. This means limitation of the population. Why have more if the city is big enough. His ideal plan of the city was circular with an open park in the center, around which were gathered the public buildings of which the city needed but one, or at most but few, such as the town library, town hall, theatre, opera house, museums, etc. Then came some four or five circular streets of residence, with a wide avenue in the middle of them with a park space in the middle of it, with room for schoolhouses, churches, masonic buildings, and other semi-public structures. The last street was to be a row of factories with a belt line railroad behind them and beyond that open ground for garden plots and farm land.

Nothing New About It

By the application of our well-established principles of building restrictions, crowding was kept out by limiting the size of lots to a certain minimum and then limiting the proportions of a lot that could be covered by a house. Thus Mr. Howard figured that the city would be full grown with about thirty-two thousand, more or less, depending upon the size of the families. After this city was full the other increased residence needs could be met by building another city nearby, just as we build the next suburban station on the railroad. In the ideal plan about six thousand acres are required for the city, of which about half are left for farms, and the remaining in streets and city.

How It Works

The average American predicts failure for any such enterprise. However, England feels the city problem much more keenly than we do in this country, for it has had the industrial city longer, and in recruiting for armies, particularly for the Boer War, England has discovered with horror the physical degeneration which results with generations of city dwellers, with inadequate dwelling facilities, no gardens, no ground, no play facilities. After much hard work, Mr. Howard succeeded in forming a Garden City Association that raised enough subscriptions of cash to start, although they did not get the necessary one and one-half million dollars which they thought they should have. They bought about four thousand acres

of farm land forty miles north of London in Hertfordshire on one of the great railroads and proceeded to set apart the central half of it for city, lay out streets and plan a factory town. Owing to the contour of the ground, there was no attempt to maintain the circular idea of the abstract plan, but all the principles were applied, namely, nearness of the man to his job, to the open country, to play space, and a roomy lot for each residence. It has succeeded. In nine years between 1904 and 1913 about thirty factories have moved to the place, which had a population of 8,000 and was steadily increasing. The crucial test, however, of its success is the balance sheet. It was financed by a group of individuals who were willing to put up some money, buy the land, and get their 5 per cent cumulative dividends eventually if it succeeded. It followed the usual English plan of giving long leases to land and letting tenants improve. This is the way many English cities are already built. The company bought at farm values and rented at low town values. Thus the cottager who buys a lease for a plot pays perhaps $10 a year for the lot, but as there are seven or eight such lots per acre, the income on the original purchase price of $200 is ample. Thus these leases which had been sold when the town was one-quarter grown caused the balance sheet for the year 1912 to show a profit. The financial plan provides that the promoters shall get 5 per cent, and after that further profits shall go to the city in improvements and reduction of taxes. One of the manufacturers told me he could foresee the time when the town would be without taxes, and then the manufacturers would come there "in droves."

Its Appeal to the Manufacturer

I regard this attempt to eliminate the crowding evil from the manufacturing town as perhaps the most important single social experiment going on in Europe, for it is a statistical fact that no large city population anywhere is physically and numerically maintaining itself. In 1913, I spent several days in this city going through it very carefully to see how it appealed to the manufacturers. I had letters of introduction to the prophets of the place, but really I did not care how it appealed to the prophets, for I knew that in advance. I did not care how it appealed to the poets, the artists, the retired bankers, the maiden ladies living on snug incomes, nor the cranks, nor the merchants who sold to all these,

nor even to the workers who made up the bulk of the population. The worker goes where there are jobs. The butcher, the baker, and the candle-stick maker come to serve him, so that the vital part of a city is the way it appeals to the man who promotes the primal industry, which is usually manufacturing. Therefore I interviewed the manufacturers of the place, making a special attempt to try to find those who were most distinctly what you would call the practical turn of mind in contrast to the altruistic. Everywhere I found the same enthusiasm. I went to get their ideas, but first I must go and look at their plants. They all pointed out the great superiority of the plant on these two- or three-acre cheap sites over the plants they had left in London, many of which were crowded, and so dark as to be lighted by gas, and so inadequate as to interfere with the best efficiency of work.

Perhaps the best interview was given by an automobile manufacturer who had been the hardest to persuade to come there, and who finally consented to do so for the following reasons as he stated them:

First. When a man bangs about in an omnibus for an hour and even more, morning and evening, going to and from work, as my men did, I figured it was wearing him out, and making him less efficient for his work. I also figured that the six-pence he had to pay for that finally came out of me.

Second. In London where there were lots of works, we found the men were becoming rovers, increasingly so. If a man did not like it in my works, he could move to the next. When he needed a little discipline, he would get mad and quit, and go to the next place where he would do the same thing and be none the better for the move. It cost us at least two pounds Sterling when a man quit. Now where there are less works of a kind up here, a man will listen to reason, is a little more dependent on his job, learns, and becomes a better worker.

Third. The building restrictions appeal to me. In London, if I wanted to put a stove pipe through a foundry shed roof, I had to draw up plans and specifications, apply to the board of building inspectors, pay a fee, and maybe wait thirty days for them to get around to it, and perhaps be refused. Here, if I want to do it, I go ahead and stick her out. My plant is so far from the next plant that it can catch fire and burn down if it wants to without much danger to others. In London a rubber plant came and stood alongside mine, and the underwriters put my insurance up 100 per cent. Here that cannot happen. I have signed a uniform contract with the company like every other manufacturer has, and I know just what they can do and what I can do.

I found out one thing that I never believed. I had heard, of course, lots of socialists and other people say that if a man had a nice new factory with plenty of light and air, and good recreation, he worked better, but, Lord, Mr. Smith, I never believed it. But it's a fact. I know, for I have brought men here from

London, have brought the machines with them and the same men worked on the same machines at the same rate of pay with the same inspection and same bonus system, the same number of hours per week, making exactly the same brand of machine, and they turned out more work. It amounts to between 7 per cent and 8 per cent. That cuts down overhead charge, and what's more, the quality of the output is better. I can't give you that in percentage, but I have been running these works for fifteen years and I know. The stuff goes through better, and less material is spoiled.

When the work is over, the children come up to the factory gates to meet their fathers and they are home in ten minutes. You ought to see this place on Saturday afternoons. It is full of football games. Every works has a football team or two or sometimes three. All the teams play match games with each other in winter and cricket games in the summer.

It is not an uncommon thing to see a factory in the corner of a three-acre lot over which it may eventually grow. Meanwhile football goal posts indicate the use the ground is being put to. Owing to the fact that this land is had at a low lease per year, the works can easily afford to rent three acres of ground to expand on.

It is the most beautiful factory town I have ever seen, for the reason that every house has room enough for flowers in front and vegetables behind. At no place do they have lots more than twelve to the acre, which means that lots can be practically 20 x 200 feet, even in sections given over to the artisan. That makes provision for a small front yard, cottage site, little back yard, and 100 feet left for garden in the rear. A labor agitator with whom I had a long interview on Sunday told me he could pretty nearly tell how long a man had been there by looking at his garden. The first year after arriving from London, he did not do much. Then summer came, the neighbors began to hand vegetables across the line. The next year he made a start, and by the third year his garden began to be of some real value.

Inasmuch as the town is definitely planned, it has ample factory districts on railroad sidings, and there is on each side of this a large district given over to cottages for factory workers. This is reserved for factory workers, by building restrictions which insist that houses shall cost up to a certain minimum, but not beyond a certain maximum. That practically means artisans' cottages. Beyond that in both directions are larger lots, at higher rent with different building restrictions, which means middle class. On the highest ground still further away from the factories are yet larger and more expensive lots where factory owners and persons of some means

have their beautiful homes. Near the station is the natural place for the shopping district, while immediately across from it is a seventy-acre playground, with several smaller ones of twelve, five, three, and one-half acres, etc., scattered about the place, which is, so far as I know, the only town of its size in the world that has public provision for simultaneous play of any large percentage of its population.

The limitation of population is provided for in building restrictions. By this means these facilities of accessibility and play space become permanent. Just beyond the factory district come the farm holdings. Perhaps Mr. Howard's dream of a town that combines the advantages of both city and country will come true. It has certainly made a good start.

The people of this town have almost unique opportunities for the development of health, muscle, character, and wealth through by-industry. There is a very considerable chance to duplicate the conditions of the artisan's life before the factories came. Think of the opportunities for boys and girls to garden, especially as the time for beginning factory labor is being postponed. This opportunity for wealth and solace and the additional ones offered by poultry are a boon to the old, and they are being used in Garden City. Back of a beautifully embowered yard lived a retired engine driver. Back of his cottage was one of the most productive bits of garden, 50 x 40 feet, that I have ever seen. If a family wishes to go at market gardening on the side, small holdings can be rented just beyond the town limit. It is not necessary to pay city lot rent. The land is not suburban, it is farm land, so denominated in the contract, and the contract is as tight as it could be made.

The health of the community as indicated by the appearance of the school children, and by vital statistics is unusually good.

The Needless Reconstruction of Indefinitely Planned Cities

The fact that this garden city is definitely planned saves it from the endless turmoil of reconstruction which a growing city encounters, owing to the fact that as the city grows, each part has a different use with every generation. Therefore each generation tears down what the previous generation built to last for many decades. Thus in Philadelphia and in New York the business

section is invading the residence section, either using awkward old residences, or tearing down and building anew. This winter a block of splendid substantial houses worth many thousand dollars was torn away near the University of Pennsylvania to make room for another university building. That great university with 5,000 students on the campus has outdoor space for one football or baseball game at a time, leaving the other $99\frac{3}{5}$ per cent without the possibilities of outdoor athletics at that time. Thus the city has swamped itself, and its institutions, as all growing cities do where every building operation and every unit of growth is part of the heterogeneous individual effort. The supreme example of this waste is perhaps shown by the subway, that fearfully expensive kind of construction that never should have been. The suburbs of a growing city are successively swamped by new uses. Because the people are expecting in a short time to sell them for building purposes, the land is held for high prices and the chief occupation of the land that should be in crops is the support of "for sale" signs. Around Garden City is a belt of farms and playgrounds, which, owing to the fact that it is definitely set apart for these uses, has and can have no sale value, in which respects it resembles our parks.

The most significant part of the whole thing is that it has been done by the application of existing practices and existing laws with existing human science. Most attempts at social reconstruction have to await a conversion of the majority to a new point of view, and if the dreams of the socialist come true, we must also develop an entirely new system and type of business administration. In contrast to that millennial process, a garden city like Letchworth, England, can be built now in any well-chosen location. Any group of capitalists with constructive imagination and good business ability can start in and do it under existing law. As to its areal aspects —there is plenty of room along the Delaware River for all the industrial population now near it (and much more) to be so situated that they could avail themselves of all the principles involved in Garden City and have the best access to the harbor. They now have very poor access to it.

If our urban people lived in such cities as Garden City it would beyond a doubt reduce the cost of living, increase wealth through by-industry, increase pleasure through the possibilities of recreation,

increase efficiency through increased health. The land speculator alone would lose—lose his present much too widespread opportunity to take something and give nothing in return. Something for nothing is a process that is variously regarded according to our social enlightenment.

THE ATTITUDE OF BUSINESS TOWARDS FOREIGN TRADE

By Edward Ewing Pratt, Ph.D.,

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The great European war will bring about not only large changes in the map of Europe but also tremendous changes in the industrial and commercial alignments of the world. The United States has been gathered up by the European explosion and projected into the world's affairs and into the world's markets in an entirely unexpected manner. The entire industrial and commercial trend of the United States has been altered. Great commercial and industrial opportunities confront us and beckon us on. It is a question, however, whether business is prepared to take advantage of these opportunities.

The American business community may be divided into two camps. One camp has for its slogan and motto the "home market." The other camp has for its slogan and motto "foreign trade." These two terms "home market" and "foreign trade" represent two highly contrasted attitudes towards the commercial and industrial future of the United States. In the "home market" group are those who, in the face of present opportunities to extend our trade into foreign markets, point out the large advantages of domestic trade and who are unable to see the advantages of developing a foreign market. In the "foreign trade" group, on the other hand, are to be found wide-awake, ambitious and imaginative business men who are looking forward to the expansion of their trade to all parts of the world.

There are in the present situation vast opportunities not only in the foreign markets but in the home market as well. The United States has been a very large importer of commodities manufactured in other countries. Since the beginning of the war the principal manufacturing countries of the world have ceased to manufacture for export to any considerable degree, and we find ourselves in urgent need of certain kinds of manufactured articles. We now find that we can no longer purchase them in sufficient quantities from

European nations. Here are many opportunities for the extension of American enterprise in the "home market," and if the great European war does nothing else than demonstrate to the American manufacturer the necessity of self-sufficiency and independence of other nations, it will have rendered the United States a service. For example, during 1914, we imported over thirty-five million dollars' worth of silk goods, over seventy million dollars' worth of cotton goods, over eighty-two million dollars' worth of manufactured fibers, and over one hundred and eighteen million dollars' worth of chemicals, drugs and other chemical compounds. The field of chemical manufacture seems to be an especially weak point in American industry, and is a field in which at present there is a vast opportunity to expand by the intelligent use of our natural resources in conjunction with the favorable opportunity afforded by the conditions in Europe.

Strange as it may seem, American manufacturers are not hastening to take advantage of these opportunities. This is especially true of those who belong to the camp which has for its slogan "home market." It seems to be a peculiar psychological trait of the "home market" man that he does not even believe in a natural, healthy extension of his cherished "home market," and even in the face of tremendous incentive to develop new lines of industry. American business men have not always been willing to face the problems which confront them and solve them on their merits or demerits. Large amounts of money and time have been spent for lobbying in attempts to obtain artificial restrictions and other legislative benefits from the federal government. This time and money could be much more profitably spent upon studies to secure more efficient methods of production and distribution. Investigations made by the federal government have disclosed a surprising lack of knowledge, in many American industries, of the exact, or even approximate, cost of production of the units of manufacture. There are enormous losses in the distribution of goods when large discounts are allowed and when cancellations are tolerated, and when goods pass through too many hands in the progress from the producer to the consumer. If more attention were given to these and similar matters, economies could often be effected which would obviate the alleged necessity for additional governmental aid.

There are some people who actually advocate the development

of the "home market" to the exclusion of all other markets. This fact alone shows the short-sightedness of the policy of the "home market" group. But there are other meanings in the term "home market." The term "home market" implies a limited outlook. It means provincialism in business; it means self-complacency; it contemplates the building of a tariff wall to keep out all invaders, even if that wall at the same time prevents the extension of our own markets abroad; it means nation-wide inefficiency because it excludes that competition with other nations which forces upon the American industry nation-wide effectiveness; it implies a certain lack of progress and stagnation; and finally, it implies small scale production in every sense of the word. The "home market" idea takes no cognizance of the fact that American manufactures are increasing vastly more rapidly than the population, and that unless greater foreign outlets are found for our products a limit will be reached sooner or later, in the development of many of our manufacturing industries.

The other group of opportunities has to do with foreign trade. It is in those foreign fields where European nations have held their sway almost undisputed by the United States, that there are to be found the largest opportunities for the extension of American commerce and industry. For a number of years the American manufacturer has neglected this fruitful field of commercial endeavor and has left it to his European competitor. Now his European competitor is otherwise engaged and he has been called upon, in many cases against his desire, to do business with foreign countries which have formerly been purchasing from the European nations which are at war.

It is not the intention of the writer to advise manufacturers and business men to give up "home markets" and to devote themselves to "foreign markets." Such advice would be absurd. The intention is to urge manufacturers to supply an even greater range of wants in the domestic market than they have ever heretofore supplied, and in addition, to urge them to recognize the opportunities in foreign markets and to go out and get the business which awaits them there. The "home market" should be expanded into the international market.

There is a considerable body of manufacturers and merchants in the United States who have adopted foreign trade as their aim in business. They are fully awake to the possibilities of the tremen-

dous foreign market and realize the advantages of it. The term "foreign trade" implies the many-sided development of industry. It means the internationalizing of our trade and the enlarging of our industrial and commercial outlook; it means the fearless competition of our manufacturers with those of other countries, not only at home but also abroad; it means the leveling of artificial barriers; it means the aggressive action on the part of our manufacturers rather than passive resistance; it means the practice of rigid economy, the complete utilization of inventions and the savings which result from capacity production; it means the creation in our industrial life of machinery for supplying, not only our own wants, but the wants of the world; but perhaps most of all it means the stabilizing of our business.

Our commercial and financial position would be greatly strengthened by a world market. England has admirably weathered the financial storm occasioned by the great European war, and it is realized that no small part of her strength is due to the fact that her markets are world-wide, and that London is to a considerable extent the financial center of the world. The financial situation at the opening of the war was most efficiently handled there, and it is only as we are able to approach the position now held by England that we shall be able to stabilize our commercial and financial conditions.

The situation facing the American business man today is a serious one. The question before him is whether he shall turn his face toward foreign lands from which the war has compelled his competitors to withdraw, or whether he himself shall withdraw into his "home market" and erect about himself an impassable barrier which will not only prevent foreign products from coming into the United States, but will also serve to prevent the products of the United States from going freely into the markets of the world. The important problems which confront the American business man and which he must decide on evidence which he considers pertinent are three:

(1) Are conditions in the world markets such as to warrant his invasion of them?

(2) Are the bankers of the United States prepared to finance the extension of his foreign trade?

(3) Can he, after the war is concluded, hold the markets which he has succeeded in acquiring while his competitors have been otherwise engaged?

In seeking for the answers to these inquiries, the present and past conditions which bear upon their determination must be carefully analyzed.

(1) *Are conditions in the world markets such as to warrant the American business man's invasion of them?*

Is it true that financial and business conditions in foreign countries are so bad as to make it impracticable for our manufacturers to market their products abroad? Those who hold the affirmative opinion point to South America. The countries to the south of us, they say, are almost bankrupt, the war has ruined their trade, they are unable to sell their products, they have no money and no credit and they cannot buy our goods.

Let us briefly inquire into the situation of these South American countries. They are each of them producers of raw materials. Argentina produces wheat, corn, linseed, meat, hides and wool; Uruguay produces wool; Chile produces copper and nitrate; Brazil produces coffee and rubber; Peru produces sugar and cotton; Bolivia produces tin; Colombia and Venezuela produce beef and tagua nuts, etc. These products formerly found markets in both the United States and Europe. Suddenly, on the first of August last, the European markets almost ceased to exist, and the prices of raw materials produced in Latin America fell as sharply as the price of cotton in this country. But conditions are changing. The countries which are most closely related to us, Colombia, Venezuela, Ecuador and the countries of Central America, are recovering and are now fairly prosperous. Argentina and Uruguay are fast approaching the normal. Bolivia and Peru have just started on the upgrade, and Brazil and Chile alone of the countries of Latin America (except Mexico) have been unable to do more than begin their recovery.

But after all, the present economic condition of the countries to the south of us is not as important as the application of common sense on the part of the American manufacturer in his attitude toward this foreign trade. While the present time is opportune for opening up new markets in South America, the time is not yet ripe for the immediate selling of goods. The first and necessary step is to send salesmen or, better, business diplomats into South America to study the markets, to learn the country, to meet the people, to

become acquainted with the trade and to lay the foundations for future business. It would be folly, however, to expect immediate and large financial returns. What has been said with reference to South America applies to a large part of the world. Conditions in the neutral countries are being readjusted and are fast approaching normal, and it is, therefore, an opportune time for the manufacturers of this country to be alert and to build up their trade in those countries.

(2) *Are the bankers of the United States prepared to finance the extension of the American foreign trade?*

Is it true that we cannot hope to finance foreign trade on a large scale? Is it true that our having been a debtor nation prevented the extension of our trade? It is sometimes said that foreign trade follows the flag, but it is more truly said that foreign trade follows the loan, or that foreign trade follows the investment. There is no doubt that unless the United States can make loans and investments in foreign countries, our manufacturers and merchants will not be able to develop their export trade to any considerable degree. It is true that we have been a debtor nation and that we are still obligated to foreign countries, but an interesting and important fact is that we are rapidly discharging those obligations, and that we have, within the last six months, turned the corner and are rapidly paying off our indebtedness to foreign countries.

The best evidence of the reversal of conditions and of the fact that the United States is now entering upon a creditor period in her history, is that within the last few months large quantities of gold have been sent here by European nations to pay off their indebtedness to the United States. The low sterling exchange in New York merely indicates that there are more Europeans who have debts to pay in New York than there are Americans who have debts to pay in London, and still further and striking evidence of the fact that we are fast becoming a creditor nation are the recent loans which have been made by our bankers to other nations, as for example, to France, Argentina, Sweden, Germany and Russia. In addition, the nations of Europe have found it necessary to arrange large credits in New York.

We are entering, therefore, upon a period of export capitalism, and we are now in a position, as we have never been before, to invest our capital in the industries and developments in foreign countries.

(3) *Can the American business man, after the war is concluded, hold the markets which he has succeeded in acquiring while his competitors have been otherwise engaged?*

Is it true that the cost of production in the warring nations of Europe will be low as a result of the war, and that we shall therefore not only be unable to hold the new markets that we may gain, but that we shall probably be unable to hold the markets that we had already attained?

The supposition underlying this question which has been widely circulated is that the war will lessen the costs of production abroad, and hence lower prices, and that the combatant nations will then be able to go back into the foreign markets temporarily occupied by the Americans, undersell them and drive them out.

In order to simplify the consideration of this problem, the following elements must be taken into account: good will, interest, labor, prices and taxes. The question then is: what will be the effect of the present war on each of them?

Nations like corporations have good will. When a nation gives up business in certain markets and withdraws in favor of competitors, it gives up a valuable asset which cannot be easily regained. Recently a large European concern sent an official to Spain to wind up its affairs. It is withdrawing from the Spanish market. In this particular line of goods that nation has had only two competitors: one, another combatant, the other the United States. Spain is on the eve of a business renascence. It is scarcely a question of whether the American manufacturer can get this market left free by the withdrawal of his competitors. He must go there to meet the demands which are not of his making.

With regard to the effect of the war upon interest rates, there is very little information available which would enable one to draw conclusions from past wars. Furthermore, the present war is so much more destructive than any previous war that conclusions drawn from the latter could scarcely be applied to the present. It is stated, however, "that after the Napoleonic wars the rate of interest rose. Russia, France and Austria had to pay more for their loans and that rates of from 7 to 9 per cent prevailed from 1814 to 1820. These rates were noticeably higher than those prevailing before that time." More accurate data are obtainable as to the effect of the Crimean war. It will be remembered that England, Russia, France,

Turkey and Sardinia were involved. In this case the London bank rate, which preceding the war had for ten years averaged 3.10 per cent, in the five years following the war averaged 4.60 per cent. There were corresponding increases in the interest rates at Berlin and Paris.

The next item of cost to be considered is that of labor. The unemployed and the unemployable are not those who are fighting in the front ranks and suffering the severest losses. The skilled workmen, the men in their prime, are bearing the brunt of the war. Many of these men will never return and many others will be crippled and diseased. Not only will the actual effective number of workers be decreased, but the efficiency of labor as a whole will be considerably lowered in each of the warring countries. It will be impossible to reorganize the factories for years to come on a basis as efficient as that in the past. Thus the labor cost in production in those countries will be considerably raised.

Not only the labor cost but actual wages are likely to be considerably increased. Here the experience in past wars sheds some interesting light. Statistics of wages show that wages, expressed in index numbers, were 90.4 in 1850 as compared with 100 in 1860, which was taken as a basis. In 1865 they had declined to 66.2. In the next five years they rose steadily, reaching the maximum of 152.2 on a gold basis in 1872. Statistics of wages in France and Germany after the Franco-Prussian war and in Japan and Russia after the Russo-Japanese war show similar results.

The effects of some of the past wars on prices may be clearly shown by existing index numbers. Representing the average prices in 1860 as 100, the index numbers show that during the eight years preceding the Crimean war, prices in England (Sauerbeck) averaged 85.0, and during the ten years following the war they averaged 103.4. During the ten years preceding the Civil War in the United States prices (Faulkner) averaged 107.1, while during the ten years following the war they averaged 121.6, on a gold basis. In Russia, prices (Ministry of Commerce and Industry) averaged 102.8 during the period ten years before the Russo-Japanese war, and 129.8 during the seven years following the war, the average for the period 1890–1899 being represented as 100. In Japan, the prices of food, clothing and material (Department of Agriculture) averaged 98.8 during four years preceding, and 122.1 during the seven years following the

war, the prices in 1900 being represented as 100. It is likely, therefore, that Europe is entering on a period of high prices. The ten years succeeding this war will probably show high prices of food stuffs, raw materials and finished products.

With regard to the item of taxes which enters into the cost of production, it is only necessary to consider the cost of the present war and the burdens which it places upon the warring nations. The cost of this war is so prodigious that the figures can scarcely be comprehended. The mere statement that England in one year of this war will increase her public debt more than she has increased it in the last 100 years indicates the vastness of the financial operations. Enormous war debts are being piled up by the various European countries, and it must not be forgotten that the previous debts of Europe were already great before the war began.

The cost of the present war has been variously estimated. Mr. Lloyd-George, the British Chancellor, estimated that the cost to the allies of one year of the war would be about $10,000,000,000. The editor of the London *Economist* estimates that the per diem cost of the war in the larger countries alone, amounts to an expenditure of $50,000,000 per day. Already extraordinary measures are being employed to raise the sinews of war. In addition to the war loans which are estimated at about $6,000,000,000, other measures have been adopted. England has doubled her income tax, which now amounts to as much as 8 per cent in some cases. Germany has increased her capital tax, and has even issued treasury notes on security of personal property and jewelry. France has increased the authorized limit of bank notes and is raising taxes generally. But the general policy is evident on the part of the warring nations to secure the necessary funds for war, not from taxes, but from loans. This means that the effects of the war financially are not to be taken up immediately, but are to be distributed by funding operations over the next fifty or one hundred years.

The inference seems to be, therefore, that costs of production in Europe cannot possibly be lowered, and are quite likely to be considerably raised. If this is the result, the European level of costs and prices will more nearly approximate our own than ever. It will also mean that the American manufacturer will be able to compete with the European manufacturers on more favorable terms than ever before.

It appears, therefore, from the above statement of such facts as are obtainable, that the conditions in the world market are such as to warrant invasion by the American business man, not only in South America, but in other countries as well; that we are fast becoming a creditor nation and are now in a better financial position than ever before to extend our foreign trade; and that the costs of production in foreign countries are not likely to fall sufficiently, if at all, to drive American business men from the markets gained during the war, provided they will endeavor to deal with the foreign producers as the latter have always been accustomed to be dealt with.

The attitude, therefore, of the American business man, if he would take advantage of the tremendous opportunities that have suddenly been thrust upon him, and if he would continue the prosperity which he has enjoyed in the past, must be to emerge from his narrow policy of complacency with the home market and dependence upon artificial means to exclude foreign competitors there. He must look beyond the borders of his own country, not only to strive to extend his own trade to the uttermost parts of the world, but to meet his foreign rivals courageously in fair competition, both at home and abroad.

BRANCH BANKS AND OUR FOREIGN TRADE

By William S. Kies,
Of the National City Bank of New York.

Forty English banks operating in foreign countries have 1,325 branches; in South America, five German banks have forty branches and five English banks have seventy branches.

The South American foreign banks and their branches are active agencies for the promotion of trade relations between the South American republics and the home countries. These banks have entered actively into the industrial and economical lives of the communities in which they are located. They have furnished money for the development of the resources of these countries; have financed railroads, harbor works, public utilities and warehouses. They have been instrumental in building up markets at home for the raw materials produced by South America, and have in this manner established a basis for a reciprocal exchange of products. The money of England and Germany has been freely invested in the future of these countries. England and Germany have put into Argentine, Brazil, and Uruguay, in the last twenty-five years, approximately four thousand million dollars, and as a result enjoy together 46 per cent of the total trade of these three countries.

Of course these investments do not represent money taken from the capital of the banks, but the investments of the people of England and Germany in South American securities. A ready market has existed in Europe and on the Continent for South American bonds and stocks, and capital for development projects has been heretofore obtained with little difficulty. Germany has been able to do her share in the constructive work of upbuilding South America because of the effective aid of an almost paternal government, which has worked hand in hand with the commercial and financial interests of the empire for the development of German commerce. German investors have been taught that the prosperity of the country depended upon the development of foreign markets and have felt secure in their investments, knowing that the power of the

German empire would be exerted in the protection of contracts entered into in foreign lands.

England's position as a world power is in the largest measure due to the development of her foreign commerce. She has not only been the world's largest carrier and ablest merchant, but at the same time its greatest banker. England has loaned money in all parts of the world whenever she has been able to see trade returns as a result of the loan. Through her system of English-owned foreign banks, with their branches, she has ever been ready to finance the needs of countries whose raw materials could be used by her factories, and whose people in return could be converted into customers for her manufactured products.

England is the world's greatest market because in it there have always been found buyers for all the various products the nations of the world have had to sell. Should market conditions for particular products be unfavorable, a system of warehouses is at hand for the storage of the goods, and the owner can always borrow on his warehouse receipt, enabling him to hold his goods for a more opportune moment for their sale.

England's preëminence as a world financial market has been due largely to the services performed by the English "acceptance houses," and to the existence of an active discount market for bills of exchange on London originating in all parts of the world. The pound sterling is the common denominator of values throughout the commercial world. Exchange on London has been the means of settlement of transactions in international commerce for years, with a resultant large profit to the English bankers, who levy, in this manner, a tribute upon the commerce of the world.

The "acceptance" is a financial expedient until recently almost unknown in this country. The difference between the method in effect here and in Europe is that commercial transactions have been heretofore financed in this country by notes, and in Europe by bills of exchange. The one is an unsalable investment; the other a prime quick asset. Credit resources of American banks have been strictly limited to the amount of their real assets. European banks, on the other hand, have been in a position to maintain a contingent liability far in excess of this limitation by accepting and transferring bills of exchange. The services performed by the

London bill are not over-estimated by an article in the *London Economist*, printed just prior to the war, which reads:

> The bill on London is the currency of the world. It is the only currency of the world. It represents gold but it is better than gold, and is preferred to gold because transferrable with greater rapidity, greater ease, greater certainty, and infinitely less risk of loss. It has therefore become the universal world currency, which, and which alone, the producer and handler of all nations will accept as wholly satisfactory and sufficient. There is nothing like it elsewhere. No such function is performed by a bill on Paris, on Berlin or on New York.

Prior to the passage of the Federal Reserve Act, national banks were not allowed to extend their cerdit, through the medium of the acceptance, to importers and exporters; neither were there any provisions in our national banking laws permitting the establishment of branches of American banks in foreign countries. There were likewise no national laws under which banks might be organized to operate in foreign countries under the authority and supervision of the United States government. Under the laws of some of the states, banking corporations could be organized with power to operate outside of the boundaries of the United States; but the fact that foreign banks, organized with large capital and well-developed systems of branches, were so thoroughly entrenched in South American and other countries, made the success of American banks problematical, if organized under other than national auspices. Then, too, a large amount of capital was needed in the organization of such branches; and it must be remembered that the United States itself is a borrowing nation, and has been a free user of the surplus capital of Europe in its own development.

The Federal Reserve Act, however, has made it possible for branches of national banks to be established in foreign countries, and to place back of the branches the prestige and resources of the parent bank. The Federal Reserve Act contains a further important provision of greatest value to the future development of our commerce. Section 84 is as follows:

> Any member bank may accept drafts or bills of exchange drawn upon it and growing out of transactions involving the importation or exportation of goods having not more than six months' sight to run; but no banks shall accept such bills to an amount equal at any time in the aggregate to more than one-half its paid-up capital stock and surplus.

Section 82 of the act provides for the rediscount of such acceptances, based on the importation or exportation of goods, which have a maturity at time of discount of not more than three months, when indorsed by a member bank.

Acting under the provisions of Section 25, of the Federal Reserve Act, in regard to foreign branches, the National City Bank of New York has established branches at Buenos Aires, in the Argentine Republic, and at Rio Janeiro and Santos, in Brazil. The Federal Reserve Board has granted permission for the establishment of a West Indian branch, with a main office at Havana, and sub-branches at various points in Cuba, the island of Jamaica, and San Domingo. The authority for the opening of the branch at Rio Janeiro carried with it permission to operate sub-branches at Santos, Para, Pernambuco, Bahia, and Sao Paolo. The Buenos Aires branch was opened on November 10, 1914. The branches at Rio de Janeiro and Santos will be opened early in April.

The immediate effect of the opening of the branch at Buenos Aires of most value to the commercial interests of the United States was the establishment on a permanent basis of dollar exchange in the Argentine. The close financial connection of the Argentine with Europe, particularly with England, has in the past worked to the disadvantage of the merchants of this country seeking to do business with Argentine. Dollar exchange has not always been available, and the usual method of settlement has been in pounds sterling by drafts on London. Theoretically, at least, two exchanges entered into every transaction between merchants of this country and those of South America; first from the local currency into pounds sterling, and then from the pounds sterling into dollars. In transactions heretofore, our merchants were at a disadvantage, for the risk of fluctuations in the exchange market had to be assumed by them. Through the operation of branches of American banks, there will hereafter exist in South America, a ready market for dollars, and it may be reasonably expected that the sight draft in dollars, payable in New York, will, to a large extent, supplant the London bill as a medium of settlement for our commercial transactions with South America.

The establishment of dollar exchange in the financial markets of South America on a permanent and attractive basis will be materially aided by the acceptance provisions of the Federal

Reserve Act. By reason of the fact that national banks are privileged to accept bills of exchange drawn upon them, growing out of transactions involving the importation or exportation of goods, there will grow up in New York a discount market for such accepted bills. There is no more convertible form of security than the promise of a national bank of first class standing to pay a sum of money at a certain definite time, when that promise is further secured by merchandise, the proceeds of the sale of which are, at the end of the specified period, to be applied by responsible merchants to the liquidation of the debt. Such short-term paper constitutes the most liquid of assets, and will be greatly in demand by banks, trust companies, and others seeking a safe, short-term investment. With the development of a discount market of substantial proportions, New York will be in a position to take its proper place as an international money market, a consummation that will contribute materially to the commercial growth and financial prestige of this country.

The importance of the new source of credit which will be placed at the disposal of American manufacturers, exporters and importers, by the acceptance features of the Federal Reserve Act, may be appreciated when it is considered that the combined capital and surplus of all the national banks in the United States, in June last, was $1,781,000,000; and of the New York City banks alone $237,705,000. National banks, under a recent amendment to the Federal Reserve Act, may now, by authority of the Federal Reserve Board and under their regulation, accept bills up to the full amount of their capital and surplus. With the growth of a discount market, trust companies and state banks will undoubtedly avail themselves of the acceptance method of using their credit, and still further increase the facilities for financing our foreign trade.

The establishment of branches of American banks in foreign countries, will result in giving to the American merchant that form of personal representation which can only be supplied by a bank of his own nationality. In doing business in foreign countries, many days distant by the nearest mail, numerous difficulties frequently arise in the closing of transactions, in the collection of drafts, and in disputes over shipments, in the settlement of which the American manufacturer is at an entire disadvantage. At times these difficulties are so serious as to discourage his efforts in the

development of an otherwise promising field. The knowledge that his interests are in the hands of a bank which is deeply concerned in the development of the foreign commerce of his country, is satisfying and assuring, and offers an inducement to the American manufacturer to put forth his very best efforts for the extension of his trade.

Realizing that South America, to a great many merchants of this country, has been as a closed book, and that a great deal of information was needed concerning market possibilities, and the technical requirements of exporting to South America, the National City Bank has provided a commercial representative upon the staff of each of the branches it has established. The commercial representative's duties will comprehend the doing of trade promotion work in the interest of manufacturers of the United States. It will be his work to study in a thorough and comprehensive manner the opportunities in foreign markets for the products of our factories and workshops, and cultivate personal acquaintances among the business men of the country in which he is situated, so that he will be in a position to give to American salesmen the personal introductions which are so valuable in foreign countries. He will supervise technical investigations into the possibilities of a market for a particular product, so that manufacturers in this country will be able to ascertain the price at which their goods can be sold in a foreign market, the cost of delivery to the market, the supply on hand, the manner in which the particular articles must be packed and prepared for the market, and the finish and quality desired, and the character of the competition to be met. Samples of foreign competitors' goods can be collected by the commercial representative when desired and forwarded to the home exporter for purpose of comparison. When disputes occur in regard to shipments, or information is needed concerning any particular transaction, or a confidential investigation of some question is desired, the commercial representative will be available for this work.

In addition to conducting investigations into commercial conditions and possibilities, the branch banks will of necessity be obliged to establish bureaus for the collection and dissemination of credit information.

The question of the extension of credit, particularly in Latin America, is one that has heretofore presented a seemingly insur-

mountable obstacle to many United States firms desiring to enter the South American field. The long credits which have been customarily granted by German and English business houses have discouraged a great many of our merchants. The fact that collections would have to be entrusted to foreign banks, and the feeling that somehow or other, at such a distance, there were greater possibilities of loss than at home, have contributed to the discouragement. While the large mercantile agencies of this country have for a number of years maintained successful branches in South America, and have been in a position to give credit information, yet the average business man has, in his domestic dealings, been accustomed to receive in addition to mercantile agency reports, bank opinions upon the credit of concerns which sought to do business with him. Branch banks, through their credit departments, will be able to supplement the work of the mercantile agencies, and give to American manufacturers the benefit of their judgment upon the credit standing of business houses engaged in foreign trade.

Credit data, prepared in duplicate, and kept on file in the credit department of the parent branch, will furnish a reliable source for ready credit information for the benefit of American business houses. In time, too, as American branches grow into the industrial and economic life of the countries in which they are established, local merchants may be induced to form such relations with the branches as will enable commercial credits to be opened in their behalf, so that the branch banks may be able to accept drafts drawn against shipments of American manufactured articles destined for foreign markets. In this manner the credit of the branch may be used to directly facilitate the importation of American products, contributing materially to the solution of the long-credit problem.

In order to build up a profitable and lasting commerce in hitherto untouched markets in foreign countries, it will be necessary for us to aid in the development of those countries. Brazil, Colombia, Argentine, Chile, Peru, and other of the South American republics have natural resources of greatest value awaiting development. If in the years to come the United States shall invest its surplus capital in the upbuilding of South America along the same lines which govern the investment of European countries in that field, trade opportunities will result which will show a return to us of many times the original investment.

The American investor, however, must be educated to an understanding of the necessity and desirability of investing money in foreign countries whose markets we seek to cultivate. He must appreciate the fact that an extensive foreign trade will contribute greatly to the general prosperity of his country. He must learn to realize clearly that the successful extension of our foreign trade is predicated not only upon the development of reciprocal trade relations, but equally so upon the free investment of capital for the development of the resources of the countries whose patronage we are anxious to obtain. Branch banks will be able to assist materially in the investigation of desirable openings for capital investment, and in directing such investments along lines where they will be productive of most good to our commercial interests.

A rare combination of circumstances now favors us. The business ties between other great nations whose commercial intercourse has long been reciprocal and friendly have been sundered at the very moment of the creation of the machinery so badly needed for building up of our foreign commerce. Considering the fundamental readjustments in trade relations between many nations that are bound to result from the conflict now raging, the opportunity presents itself to this country to construct in the next few years a lasting foundation for a profitable foreign commerce of large proportions.

Whether history shall record that this nation successfully and intelligently grasped the opportunity, and measured up to the responsibilities of the situation, will depend entirely upon the willingness of our people to scientifically and intensively study conditions, and the problems connected with foreign trade; upon their resourcefulness in adapting themselves to the requirements of foreign markets; upon their ready development of an international viewpoint; upon their aptitude in appreciating the national characteristics and susceptibilities of foreign nations; upon their tact and diplomacy in the cultivation of the foreign field, and upon that which is of most importance, the degree of coöperation which shall be developed among those who are actively interested in the movement for expanding our foreign trade.

SOUTH AMERICAN MARKETS

By Charles M. Pepper,

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The economic basis of the South American market is reciprocal trade. The southern continent in its variety of natural products, agricultural and mineral, which are wanted by the rest of the world, has an assured purchasing power. Conversely, it is a world market for numerous manufactured commodities, and for certain foodstuffs.

The chief mineral exports of South America are tin, copper, iron ore, gold and silver. In the economic terminology, the Chilean nitrates of soda or saltpetre also may be classed with the minerals. The chief tropical agricultural products are coffee, rubber, and cacao. These are supplemented by hardwoods, dye-woods, and various other forest products. The agricultural products of the temperate region, which comprises Argentina, Uruguay, Southern Brazil, Chile, and the high plateaus of other countries, are the cereals, beef and mutton, wool and hides. There is a constant world-demand for these commodities which is little influenced by competition from other sections.

Natural circumstances combine to make the South American countries, as a group, heavy buyers of iron and steel and kindred manufactured articles. Where the raw materials exist for a basic iron and steel industry they are too widely separated to be assembled.

Brazil has abundant manganese and enormous iron ore deposits three hundred miles from the coast, but no coal, except in a few localities where meager local deposits serve for domestic purposes. Chile has iron ore in the north, and lignite coal along the southern coast, but this is not suitable for blast furnaces, and the iron ore finds a more profitable market in Bethlehem than in Chile. Oil exists in northern Peru, and is utilized on some of the railways for fuel, but Peru has no iron ore and coal deposits capable of commercial development by being assembled at a single point, except at a vast expenditure for transportation facilities. Argentina has oil fields in the south, but no iron ore, copper, or coal.

The future will see a development of the latent water power in the Andes and elsewhere, and electrical industries will benefit by it, as the Peruvian smelters are now benefiting. But taken in the broad sense, South America, for at least half a century, may be considered as a non-manufacturing continent. It is, therefore, the natural market for manufactured commodities of foreign countries.

Mining machinery always will be in demand. So also will be agricultural machinery. The fertile prairies of Argentina are like the Mississippi Valley, but Argentina has not the raw material for manufacturing the semi-finished materials which have enabled an agricultural implement industry to grow up in the middle west.

The limitation of raw materials convenient for assembling at a common industrial center does not mean that there will be no manufacturing industries in the South American countries. These already exist, but they are of the lighter variety. For example, Peru years ago began to utilize part of her cotton crop in her own mills. Brazil is doing the same thing. Argentina in time will employ some of her hides and wool in domestic industries, such as leather and knit goods, as she is now using some of her wheat crop in her own flour mills. But Argentina will not make steel rails and locomotives for her extensive railway system. Nor will Brazil for her system.

The South American countries which have tropical agricultural products to export are natural buyers of some of the food products of the temperate zone. Though they have areas suitable for the cultivation of the cereals in the intermountain valleys and the highlands, these are of limited extent. Flour and packing house products are always in demand in these countries far in excess of the local supply.

With salient facts of this kind in mind, a general survey of South America as a market, and as a factor in world commerce, may be taken.

In a geographical way, as relates to commerce, South America may be divided into three regions. These are the Caribbean coast, extending from the Isthmus of Panama to the Guianas; the east coast, extending from the mouth of the Amazon to the Straits of Magellan; and the west coast, stretching from Panama to the Straits. By this method of grouping, the diversity of products,

which are the basis of exchange, and which furnish the purchasing power of the inhabitants, is established.

A glance at the map, and the parallels of latitude, shows that the Caribbean coast region produces almost entirely tropical commodities which are wanted in the temperate regions. Coffee, cacao or chocolate, some rubber from the interior river districts, bananas and other fruits, and dye-woods and hard-woods, are the chief export products. There are also some of the precious minerals.

The east coast and the territory back of it cover the region with by far the largest population and with the greatest variety of products, since both temperate and tropical are included. Brazil, for instance, is not only the leading source of the world's supply of coffee and an important source of rubber supply, but in the southern district the cereals are grown, and there is an expanding live-stock industry. Argentina and Uruguay, although politically separated, are identical as a producing region. The wonderful development of Argentina is almost entirely agricultural. The world is seeking its wheat and other cereals, its beef and mutton, and hides and wool, while Uruguay also is supplying wool and hides.

The total trade of the east coast countries in some years is seventy-five per cent of all that of South America. Rio Janeiro, with a population approaching 1,000,000, and Buenos Aires, with more than 1,600,000 inhabitants, are on the east coast. The increase of population through immigration is to be looked for in central and southern Brazil, Argentina, and Uruguay.

The physical geography of the west coast shows the great Andean mountain system with numerous chains and subsidiary ranges. This naturally suggests mineral wealth, and the trade of the west coast is based largely, though not entirely, on the mineral products. In addition to the minerals are the rubber, which comes in part from the Amazon affluents, the coffee, cacao and ivory nuts of Ecuador, the sugar, fine cotton and alpaca wool of Peru, as well as the cereals of the central valley of Chile. But the output of Chilean and Peruvian copper, Bolivian tin, silver from all the Andean countries, and the nitrate fertilizers of Chile, are the leading sources of purchasing power.

The normal foreign commerce of the South American countries exceeds $2,000,000,000 annually. This excludes the trade of the

countries among themselves, although in official reports this trade is given under the heading of foreign commerce.

Until the commercial and financial crisis, which preceded the world war, involved the South American countries, and was rendered more acute by the hostilities, the prospect was that the foreign commerce of the continent as a whole would mount without interruption to $2,500,000,000. That may be taken as the prospect after peace is restored. It also may be assumed that on a basis of $2,500,000,000 foreign commerce, the South American exports will apparently exceed the imports by $250,000,000 to $300,000,000, but in passing it may be said that there is no real balance of trade in favor of South America as a whole, since the remittances on European loans and European investments offset the excess of exports.

In analyzing South America as a market for the products of the United States, and the United States as a market for South American products, it is necessary to clear away some conspicuous errors. One error relates to geography. The Caribbean countries may be called contiguous. The Panama Canal makes the west coast an extension of our own Atlantic coast. There is, consequently, some geographical advantage to North American exporters. But, as has been shown, the mass of the South American population and the larger part of the commerce are in the east coast countries, and, geographically, the advantage of the United States in relation to them is small. Buenos Aires and Rio Janeiro, by the most feasible ocean routes, are little nearer to New York than to Genoa, Barcelona, Hamburg, and Southampton.

Nor must it be ignored that the streams of immigration which feed the population of the east coast countries are from Europe. The tide of immigrants from Italy and from Spain flows steadily into Southern Brazil and Argentina. Brazil is also freshened by the immigration from Portugal. Common language, customs, newspapers, and constant intercourse with the country of origin therefore give Europe a marked advantage in supplying consumers in the east coast countries.

Another conspicuous error, propagated from the stump during political compaigns, has been that our trade with the South American countries is very small because our tariff has not been liberal enough. The truth is that the vast bulk of South American products have been admitted into the United States free of duty for a

long period. Rubber, coffee, cacao, tropical fruits, such as bananas, and hard-woods, have paid no duty; nor have copper, tin, and nitrates.

Under the Dingley tariff and the tariffs that preceded it, not less than ninety-seven per cent of South American products were admitted free of duty, and in some years the average was greater. With some countries it was practically a hundred per cent, as was the case with Brazil. The Underwood tariff, by placing wool and cereals and meat products on the free lists, has brought up the percentage as related to Argentina, but it has not affected the general equation.

The drawback to increasing the trade of the United States with South America has been a home market which many manufacturers regarded as sufficient. A further drawback was the practice of dumping surplus products in the years when the home market was inactive. Both these conditions are now past, and cultivation of the South American market is to be looked on as part of our campaign for permanent foreign trade.

In a discussion of some of the principles which underlie trade with South America, and which are fundamental, it is annoying to have to turn to petty questions, such as packing, English catalogues, non-Spanish or non-Portuguese-speaking salesmen, and ignorance of local trade requirements and peculiarities. So much is written on these matters that they may be omitted here, with one exception. This exception is the peculiar requirements of the textile market.

The European war dislocated the textile market of Argentina which is worth $40,000,000 annually. Germany and Belgium were put entirely out of the business, and the English mills, on account of war conditions, were embarrassed. The United States could have had an immediate participation, which would have been a permanent participation in this market; but the cotton mills, although they had been given abundant information regarding the patterns which were wanted by Argentine consumers, were not in a position to enter the market, because they were not making the kind of cotton fabrics that the Argentine consumers liked. These Argentine consumers will not take cotton fabrics that do not suit them. All the homilies about the textile trade that awaits

the United States in Argentina will not change this fundamental fact.

The long credits required by South American importers have been an unquestionable drawback to the extension of trade with the United States. For years to come it will continue to be a drawback, but the situation is susceptible of amelioration. A compromise, or an approximation of credits, may be worked out, on the basis of the ninety-day draft on New York. The establishment of branch American banks makes this possible. It also overcomes the other serious handicaps that have existed. So much has been written about the lack of banking facilities that, since this deficiency is now in a way to be overcome, it does not need detailed discussion.

Two basic requirements must be heeded if the South American market for the products of the United States rises beyond the $125,000,000 to $150,000,000 limit which now measures it, and if the United States is to reap the full and legitimate advantage growing out of the dislocation in trade connections caused by the European war.

One is the encouragement which should be given American manufacturers and exporters to coöperate or combine, by means of selling organizations, in marketing their products. Competition of other countries can only be met by this means, and the South American market in all circumstances, and under all conditions, is essentially a competitive market, If our anti-trust laws make such combinations illegal, as is maintained, they should be amended. No amount of generalities will do away with the necessity of permitting coöperation or combination in the foreign market. It is a question of pooling South American trade.

Another fundamental proposition, and the most important of all in increasing trade with South America, is the investment of capital from the United States in loans and in construction and similar enterprises. The country, whose capital is invested in a South American country, is going to get the most of the contracts for materials used in construction enterprises, railway building, and the like, as well as the contracts for public improvements carried on by the governments. England's investments in Argentine railways, banks, and loans are the living evidence of this fact.

German investments in banks, and in commercial partnerships, are in further testimony to the efficacy of this plan.

The exhibit is before the United States. A beginning was made in the absorption of the Argentine loan. Participation in other South American loans and in investment enterprises should follow on an expanding scale. In proportion as it does, the trade of the United States with South America will expand.

THE UNITED STATES' OPPORTUNITY TO INCREASE ITS FOREIGN TRADE WITH SOUTH AMERICA

By Lorenzo Daniels,
New York City.

Trade opportunities in South America are now before the public of the United States. Much has been said about them by the departments of the government, chambers of commerce and commercial trade conventions throughout the country. To appreciate exactly the practical side of these opportunities, it is desirable to start with the fundamental conditions governing the development of such trade or business. To do this it is desirable to divide the business under several captions: first, financial operations and permanent investments; second, enterprises that pertain to the development of the growing countries of South America, such as public service corporations, railways, the construction of manufacturing plants in the countries themselves, companies for colonization and industrial development and mining operations; third, the movement of competitive products, such as grains, wool, meat, coffee and other natural products of the countries; fourth, the export of our manufactures.

In entering any one of the above fields, it is desirable to decide whether the entry is to be on a permanent basis, qualified to meet local conditions and competition at the foreign points as may arise from time to time, or whether the opportunity is only desired when the market is a profitable one as compared to our domestic market or other world markets that may be more favorable.

Reverting to the question of finance, it would be of great assistance to the trade as a whole if American banks could be established in all the principal centers of South America, with their own organizations on the spot eager to promote American business and interested in its success and development. These banks would have not only the opportunity of financing the general banking business of merchandise and travelers, but would also unquestionably have the opportunity of backing promotive enterprises, if money could be obtained in the United States at a competitive rate of interest as

against the banking centers of Europe, such as London, Paris and Berlin. These centers have in the past furnished most of the money for South American developments and, as compared to the United States, they have always been able to procure and supply this money at a lower rate than its equivalent value in our own markets. Whether the war will change this condition is problematical, but on this question lies largely the extent and character of the development of our own identification with the growth of South American interests. It is to be hoped, if our banks enter this field seriously, that they will look at the matter in the broad term of years and not of daily fluctuation of interest values.

If the United States should invest several hundred millions in South American enterprises promoted by this country and with the securities marketed through our own stock exchanges, the personal interest of the people of the United States would be largely increased in the results of South American business; and, incidentally, because of these promotions a great many people from this country would be called to active participation and to take up their residences abroad. American communities would promote the extension of business in a much wider field and the personal contact would lead the merchants and governments of South America to look to the United States for support in their development and would give us the backbone and strength of a much broadened business opportunity in South America.

To accomplish the success of these enterprises, to establish confidence and to give security to the investors, our home government would be called upon to adopt a policy of coöperation and security that up to the present has not been one of the recognized policies of the government. Capital and investors can hardly be expected to place their money at such a distance and beyond the regulation of our own laws, without some assurance or pledge from our own government that the international relationships and obligations will be safeguarded. It is unquestionable that the European countries now at war will for a number of years at least have much less capital to spare for investment in foreign countries than they have had in the past. Our largest opportunity, therefore, is in this field of development.

The movement of raw materials, such as crops, agricultural products, minerals and foodstuffs, will all take a natural course of

supply and demand and need hardly come under the head of business opportunities. As our own country becomes more thickly settled and our wants increase and supplies shorten, we shall have to look to the large area in South America to supply us more and more with a share of foodstuffs. The supplies from the cattle ranches in South America are today easier and more cheaply marketed on our seaboard than our own supplies from the far west. These conditions will become a question of route and territory definition. I feel that the large users of raw material, whether in our food consumption or in our manufactures, will arrange to supply their demands and needs from the cheapest source and that the development of this class of trade will, as I have said, be one of natural supply and demand, governed chiefly by natural conditions.

We now come to probably the most detailed and interesting opportunity of all, that pertaining to manufactures. If we include in this class the large manufacturers of steel products, rolling stock, machinery for power plants, mines, etc., the volume of this business will feel very decidedly the growth of the American financial and promotive interests in South America. In actual competition with Europe today these trades are often handicapped by the large purchasing companies owned and controlled by foreign capital who naturally prefer to place their orders where their personal interests lie. But our larger manufacturers have studied the world fields very carefully; they know the quality and value of their goods. If they are able to supply a superior article at a relatively lower price, they are able to seek the orders and to establish a connection through the purchasing departments of these active companies.

As regards the smaller manufacturers who cater to the individual wants of the people, there is, of course, with the shutting off of the European markets, a great opportunity to introduce American articles. But, as I have stated earlier, it is a mistake for any of these manufacturers to enter the South American markets just on the spur of the moment and with the knowledge that they cannot compete with similar goods from Europe after the war is over. This class of business must only exist and reap its profits during the unusual conditions that prevail today. Should the United States manufacturer desire to open a permanent connection in South America and, having taken advantage of the present opportunity

to introduce his goods successfully, decide to hold his market and fight for the trade later, irrespective of the possible temptation of a rising market in the United States, he will have to look at conditions for a period of years and set aside, if in his judgment he can do so profitably, a certain proportion of his output to go to customers he has secured in South America and be prepared to fight any competition that may develop later. This class of goods is being introduced today throughout all of South America through established commission houses, through whom the inquiries come from South America expressing the want that is there for goods that were previously supplied by other countries. Such orders can be marketed through a permanent connection of middlemen, such as the commission houses. If the manufacturer has sufficient business to warrant the dispatch of special salesmen and the establishment of his own organization abroad, the present is particularly a golden opportunity. The population of South America have a great many needs that imports only can supply. Exactly what their buying power will be with the general readjustment that must necessarily follow the war, is problematical. But the fact remains that the volume of this trade must necessarily continue to be large.

The war conditions affect different portions of South America differently. Those sections of the country that have produced articles, the consumption of which has been curtailed by the war, are suffering a financial stringency and are in the same condition as are the cotton growers in this country. Other sections of South America that have produced the foodstuffs and articles that are now in great demand are benefiting greatly by the enhanced prices, the same as our wheat, wool and provision suppliers of this country. Other sections of South America from which the exports have been comparatively small and the imports largely of a personal character are practically unchanged in their general condition by the present war conditions.

In the development of all business with South America the usual acumen, care and close study of conditions are essential to success. It must also be recognized that where merchants enter new fields they have to consider carefully the conditions of trade and commerce and the customs that exist in those fields and arrive at a happy compromise between their own ideas and the ideas of

the purchaser, if such ideas at the start are at variance. In other words, the success of any trade depends upon both the buyer and the seller being mutually protected and mutually satisfied to go ahead. If the personal intercourse between the people of the United States and the people of South America could be increased, it would be of great advantage to the mutual development of business. South American merchants should be induced to visit the United States, meet the manufacturers and sellers of our goods and exchange information and views. In turn about, American merchants, where possible, should get a personal touch with the South American markets and a personal grasp of their conditions and requirements and opportunities.

The vital question is the seriousness with which the merchants of the United States consider the present opportunities in South America and whether they consider them worth while as a permanent connection. If so, no merchant in the United States needs to be told in detail how to go about getting the business. I take it for granted that every successful merchant knows that the way to get business is to get it.

COÖPERATIVE PIONEERING AND GUARANTEEING IN THE FOREIGN TRADE

By Edward A. Filene,[1]

Boston, Mass.

At last the great forces hitherto largely employed in developing and providing the greatest "home market" in the world are striving toward wider fields for conquest. American commerce also comes soliciting a "place in the sun." Oversea trade is no longer to be regarded with hasty complaisance—freely received in times of surplus production or periods of depression, to be forgotten when domestic demand again stretches out eager hands. Delayed, but none the less deep-seated, has come the firm conviction that foreign markets can be won if they are treated as primary markets, whose requirements should receive as much attention and study as our own, instead of regarding them as the outlet for our overflow or graveyard of our own manufacturing mistakes.

Thus, for the first time in the history of the United States, the fact that great expansion of trade with foreign countries is of fundamental importance is clearly apparent. United States as a nation not only actually desires and needs a larger foreign trade, but seems willing to pay the price for it in hard study, planning and fundamental work. But this desire and need come at a time of most extraordinary conditions all over the world, and, therefore, can be met only by new and radical methods. If we cannot find and use such methods, we shall fail eventually, and although we may make temporarily an apparent success, the result will be great losses for all but the exceptional few.

New machinery for making foreign trade must be found and tested, and this machinery must be superior to any employed by our competitors of other countries. Happily the business men of this country are renowned for their ability to scrap out-grown machinery and to invent new.

On previous occasions we have made spasmodic efforts to cap-

[1] The author wishes to acknowledge his indebtedness for considerable help in connection with this article to Mr. A. J. Axtell.

ture foreign trade. In each instance, however, the flutter has died away when the gale of boisterous publicity has subsided. Our prospective customers, especially in the Latin American countries, have been inclined to view these forays as a scramble after the agile dollar, and have cast their lot with the slow shilling and equally slow and perhaps surer mark. Old Europe, wise with the seasoning of centuries of commercial experience, has smiled at our boast over "favorable trade balances," taken our shipments of raw materials, and grown richer in returning these same raw materials in the form of manufactured goods.

Europe has always been painfully solicitous about encouraging American exports—of foodstuffs and raw materials. She can view with undisturbed complacency consecutive decades of "favorable trade balances" furnished at the expense of impoverished soil, depleted mines, and denuded forests.

On account of the great world war that is going on this buying power is seriously threatened not only in the warring nations but also in the neutral nations. Even before the war began, in every important country of the world, it had been reduced by the high cost of living, which had been mounting so fast as to become a serious burden. This high cost of living will inevitably be largely increased by the cost of the war; for even if that cost is capitalized, the interest on it will add very heavily to the burdens of every citizen in every country involved. And if the settlement of this war is such that Europe remains an armed camp and every nation must strain itself to the uttermost to keep its armaments effective as compared with those of rival countries or enemies, there will be added to that increased high cost of living the enormous additional cost of the increasing armaments.

This will curtail the buying power of all warring nations and may limit the purchases of the masses practically to the necessities of life for many years to come. Countries suffering from such conditions can offer but poor markets for trade expansion, however good our planning for such extension may be. More than this, their curtailment of buying power must react so strongly upon the other countries of the world, upon South America and Asia, for example, as to make these other countries also poorer fields for our trade expansion than they would otherwise be.

It becomes apparent at once, then, that great exertion and great expense for foreign trade expansion must be accompanied by at least equal exertion to make the terms of settlement of the present war such that Europe will not remain an armed camp.

I will say, right here, that I am not attempting in this article to pose as an organizer of peace compacts, for I have never in my life belonged to a peace organization. I am, rather, presenting my views as a business man, presenting what I believe to be the fundamentals necessary to permanent trade expansion.

As responsible men we should ask ourselves: What can we men do, what can the United States do, to help bring about the right terms of settlement of the war? The question is of course difficult to answer. The great nations of the world are locked in deadly struggle, and this struggle is so fierce that at the present time there seems to be no opportunity for any outside interference, however well intended; moreover, there is apparently no chance of peace being made on any terms in the near future. From my study on the spot I am convinced that any fighting government that attempted to make peace now, on any terms conceivably acceptable to their enemies, would perish under the wrath of their citizenship, who would fear that the great sacrifices they had made would not result in the indemnities and other advantages that they had hoped for.

The warring nations, then, will not propose terms of peace until either exhaustion or victory comes. The neutral countries, although they are seriously affected and suffer seriously from the effects of the war, can have little hope that any proposals they may make will be acceptable now.

Tentative attempts in this direction have failed. The danger is, therefore, that peace will eventually be made by the warring nations alone and through the same diplomats who were not able to prevent this devastating war. If that happens it is almost inevitable that the terms of peace will carry the seeds of the next war, leave Europe an armed camp, and will keep the whole world for years to come so impoverished that few if any countries will be profitable fields for trade expansion.

Fortunately, however, in the United States all the warring nations are represented by great numbers of men who were either born in one of those nations or are the immediate descendants of such

people. If, therefore, the business men make it their business to bring about a nation-wide discussion of the terms of settlement and the principles underlying more permanent peace, I believe that we can get results. At first there may be confusion, errors in the discussion, and naturally racial prejudice. But gradually a better understanding of the fundamental principles, rights, and possibilities involved will come and the discussion will attract the attention of all the parties to the strife in Europe. They will in turn be tempted to communicate, through their compatriots in this country, something of their own attitude toward the settlement of their differences. We would find, I firmly believe, that the ideas in the minds of the German people, of the French people, of the English people, of the Austrian people, and the others would filter through to their representative groups in this country. More than this, their governments, I believe, would in this way use this country as a laboratory in which to test the probable reaction of their own and their enemies' countries as to different terms of settlement, a thing which they regard as impossible in the warring countries at present. From all this there will grow up in the minds of people in this country and in neutral countries a comprehension as to what terms of settlement are fundamental for a lasting peace, and I believe that comprehension will also filter through to the masses in the warring nations. When the terms of peace come to be agreed upon, this knowledge and the will for more permanent peace that it produces, will help to make a settlement that will not only be the basis for a greater and more lasting prosperity and happiness for the inhabitants of the warring countries, but will also have a large part in making the whole world a better field for trade expansion.

May I add a word of warning? If the United States is to have any direct influence finally in the terms of settlement of the war, such influences will depend largely on the confidence the warring nations have in our fairness and justice. This will be tested most largely by whether we play the game fairly during this war. If the warring nations come to believe that we are selfishly exploiting the war, we shall have little influence with them, and, as I have said, a bad settlement will leave Europe an armed camp and among other great evils diminish the buying power of the world. We must play the game straight and not hit below the belt—not try to take

unfair advantage of the present export trade or the helplessness of any of the fighting nations.

But granted that the war is finally over and the terms of settlement have been such as will at once or in time make all the warring nations better fields for trade expansion, yet there are other fundamental factors that must be rightly dealt with before we can obtain any important trade expansion.

It is by scientific study of such fundamentals, by industrial and vocational education, hard work and very thorough organization of national and international business machinery that the Germans have won for themselves one of the foremost places in the world of commerce. The other great countries also have done similar work in varying degrees. These qualities will not be extinguished by the war. On the contrary the necessity of rehabilitation after the war will make them redouble their effort for foreign trade.

While, therefore, we may be able to greatly increase our exports during the next two years, the outlook is that after the warring nations have ended the war and reëstablished their producing organizations, the competition for the world's markets will be fiercer than it has ever been before in the world's history. Moreover, some of the warring nations, if not all, will be obliged to get this trade at whatever price they can, and will undersell us. Even then they will be able to make profits because labor will be forced to accept lower wages and employers a lower scale of living than their competitors.

Affording a clear relief against the confusing blur created by our feverish outbursts of foreign trade activity stand the notable successes of American industry. But in order to extend the scope of this new development, and also make it a lasting one, there are, however, several new methods which should be carefully studied. It must be a development backed by well organized sale departments, offering merchandise of an approved and established standard as articles possessing not only the stamp of Yankee ingenuity, but also carrying a label of guarantee with all the dignity that the United States can lend to such an article. And to this special piece of machinery I choose to call attention under the new term of the "quality stamp."

This quality stamp would give us a better chance to win our

share of the world's markets against the very able English, German and French competitors, who now largely possess them. I suggest that each national trade organization create and own a copyrighted quality stamp. This stamp attached to the goods should guarantee to the consumers that they are of the standard quality, fixed and described by tags or other means on the goods they are about to buy. Exporters desiring to use this stamp would have to agree to observe the standards and conditions of its use, and also give a bond. For any material violation of the conditions, an offender would be subject to a forfeit equal to his bond and probably also lose the privilege of the stamp. Since the stamp will be a valuable selling aid, no exporter will be willing to put in jeopardy his right to use it. A brief illustration of this influence of reliability on trade, as per this quality stamp, is shown in our failure as a cheese exporter and Canada's success—because the Canadian government absolutely guarantees the quality of Canadian cheese exports. If the above-mentioned methods are followed out, I firmly believe that we, as a nation, will be able to get the same thing in a more efficient way.

We must, however, consider the needs and wishes of oversea customers as deserving of quite as much attention as domestic requirements; thus we will have blazed the trail into every country on the globe. This pioneer task has been performed chiefly by the leaders in American enterprise—big business, if you will—but the path worn by these exporters of steel, oil and tobacco products, farm implements, sewing machines, cash registers, and typewriters can be followed by thousands of small manufactures, and the rewards will be contingent only on their attitude and methods.

We are no longer almost exclusively an agricultural people. In 1880 the products of the soil formed 84 per cent of our total exports, and in 1913 the proportion had dropped to 46 per cent. In 1880 manufactures constituted 15 per cent of our export, and in 1913 this proportion had increased to 49 per cent. In spite of the fact that more than 60 per cent of the world's acreage of corn is located within our boundaries, we exported not more than 8,000,000 bushels of this cereal from the beginning of October, 1913, to the end of February, 1914. While this miracle of the season's wheat crop has again furnished occasion for agricultural optimism, our farming methods will have to undergo a marked improvement if our supply

of bread-stuffs is to be more than adequate for domestic consumption.

In addition to the gradual change from an agricultural to an industrial basis it is necessary to consider certain other features, less fundamental, perhaps, but equally potent in their bearing on the character of our commerce. The new tariff law has been accepted as placing us on a competitive basis in the world's markets with other manufacturing countries. In order to maintain our place with other countries in those markets, we must necessarily equip ourselves. Our surrender of neutral ground to the European competitors would enable them to reap the advantage of larger profits, thus giving strength for the campaign to capture American trade on a price basis which domestic manufacturers could not meet.

The opening of the Panama canal gives new highways of commerce of the western Hemisphere. It will be seen at a glance that the nation which is best prepared will be the one to reap this new advantage.

While certain hopes may have arisen with regard to the benefits the federal reserve law will directly confer in the promotion of foreign trade which are as yet unfulfilled, it is at least conceded that it can help to carry out the declared purpose of President Wilson, that trade shall be free. The privilege granted to reserve banks for the establishment of foreign agencies paves the way for the creation of direct banking relations with other countries, the lack of which has always been regarded as a restraint upon oversea commerce. The following factors, therefore, may be regarded as furnishing the underlying basis for our effort to obtain an increased share of foreign trade. The changing of industrial conditions, a tariff forcing us into more direct manufacturing competition with older countries, the benefits involved in the completion of the canal, and new advantages that have been created by the passage of the new currency law. The time is ripe. Then as if to give dramatic emphasis to the hour that has struck, paralysis attendant upon war benumbs the energies of the old world and for a time we are given greater access to neutral markets. Accident or otherwise, our opportunity has arisen, an opportunity such as never before existed. Are we equal to it?

Foreign students of our commercial life take the view that we are never likely to succeed permanently as important factors in

world commerce, principally because it is not a matter of life and death with us. According to the last documental census, our manufactured products in 1909 reached the enormous total of $20,672,052,000. Estimates by the Bureau of Manufactures based on this showing placed our total manufactured products last year at $25,000,000,000. This is more than the total of the manufactured products of England, Germany, France, Belgium and Holland, combined. Our foreign exports of manufactures, therefore, represent only 4.7 per cent of our total output of such products. England, Germany, France, Belgium and Holland shipped abroad a total of manufactured goods equal to 60 per cent of their production. The record per capita of exports from the United States—reached in 1913—was about $25. Those of Holland were $210; Belgium $100; Great Britain $53; Germany $33; France $32. The assumption that America will not obtain an increased proportion of foreign trade, because it is demonstrably not vital to its commercial existence, can hardly be supported. Proper appreciation of the American temperament suggests that refuge in the last ditch is not essential to arouse a fighting spirit. Adequate incentives undoubtedly will be found in the realization that exports aid in stabilizing home industry, that foreign business may be profitable without a profit if it reduces costs in our country; and that the expansion of our oversea trade is necessary as a defensive as well as an offensive measure. Our manufactures must maintain a great volume of production in order to meet success on the narrowed margin of profits brought about by increased competition with foreign manufacturers. Moreover, our recurring periods of depression, if not prevented, would at least undergo some mitigation, as a result of commercial expansion because our foreign trade would take up some of the slack attendant upon an over rapid advance.

No extraordinary success in world commerce has been achieved by any nation without a certain command of the machinery by which it is conducted—ocean transportation, banking, exchange, and insurance facilities. America may accomplish this miracle without the aid of this equipment, but reliance upon fortuitous circumstances in lieu of approved methods is an invitation to disappointment. The manufacturer who makes the goods and the merchant who sells them undoubtedly come first in the list of essential factors. A general discussion of our bid for an increased share

in the oversea trade, therefore, entails the problems of how the products are to be manufactured, sold, financed and transported.

Although there are notable exceptions where individual concerns have created important foreign markets for their products, experience has taught that all foreign trade, in really worth while quantities and permanent, must be obtained by the coöperation of business men; and this is based on the fact that the markets to be conquered must be thoroughly studied. Moreover, they must be continuously watched and re-studied if the trade is to be retained. Such study and investigation is too costly for all but a few exceptionally large concerns. Personally I believe it is not the best method for even such firms to work alone, because a market laboriously earned may be ruined by commercial misdeeds of irresponsible or fraudulent home competitors or even by the ignorance or carelessness of honest firms.

Those manufacturers who have won success in foreign fields, especially in the less developed countries, have given first consideration to the fact that the foreign market must be treated as a primary market. This is a method followed by Germany, Great Britain, Holland, Belgium, and to certain extent by France. Therefore, it seems trite to say that the articles to be sold must be something that the foreign customer really wants. This truism, however, has never been fully appreciated by the American manufacturer. With a few notable exceptions, there have been no systematic efforts to meet the requirements of foreign buyers. In times of depression, the threatened congestion has aroused an impatient eagerness to sell, not what the foreign market needs, but what the domestic manufacturer has on hand. This policy has been largely responsible for the complaint of rejected shipments and unpaid accounts which has loomed like a scarecrow in the fertile field of foreign trade.

An important place also must be given to the attitude which the government of the exporting country maintains toward its citizens who are engaged in foreign trade. Thanks to the increasing efficiency of our consular service, and the helpful interest manifested by the department of commerce, we have another potential source of help to prevent the American manufacturer from rushing blindly into unprofitable errors. Specific reports on the demand for certain products, surrounding market conditions, tariff restrictions and credits are available from this source upon inquiry. The bureau

of foreign and domestic commerce of the department of commerce has been constituted the ganglion of our system of trade development. Recently, through the assignment of trained specialists known as "commercial attachés," to the task of studying foreign manufacturing and business methods, a step has been taken to grant to our commerce a place in diplomacy which will in due time rival that which previously has been monopolized by our international political relations.

In recent years diplomacy has been turning more and more to the furtherance of foreign trade. This function, previously largely confined to negotiation of commercial treaties, now works for government contracts, concessions, and participation in loans, the safeguarding of patent rights, and the opposition to laws inimical to the extension of trade.

Germany presents the most striking example of results achieved by the coöperation of government with business. Through the unremitting vigilance of its foreign office and the enactment of favorable legislation, German commerce has been given a stimulus and vigor which the energy of its manufacturers and merchants alone could not have imparted. The government policy even goes to the extent of forcing unusual credits from banks to exporters of granting freight reductions on railroad or steamship lines, in order that foreign competition may be met. And yet once more German methods may be cited with profit. The export business of thousands of small German manufacturers is handled almost entirely by large selling units, which have been found to perform the merchandising function more efficiently and economically than would be possible by the individual of moderate resources. It is necessary to employ men of high character, thorough business training and equipped with a knowledge of the language and social and business customs of the country to which they are assigned. Strong selling organizations under American management, equipped to give adequate service to the exporting manufacturer and the purchaser, and to furnish the needed capital for extending credit, would solve the problem of the disposal of our product and remove from that branch of commerce many of the traditional difficulties which have hitherto stood in the path of our pioneers seeking foreign trade.

The mercantile intelligence of Great Britain, and later of Germany, has been alive to the importance of developing the resources

of the countries in which attempts have been made to expand trade. Funds advanced for the building of railways, tram lines, irrigation works and public improvements involve a preference in the furnishing of equipment and supplies and in numerous cases a voice in the administration of the new projects. It has become the established practice in loan contracts, made by the leading European countries with less developed countries, to stipulate that materials shall be furnished by manufactures of the country lending money. While we have been dazzled by the shibboleth—"trade follows the flag"—the practical old world merchant has built up his solid success on the principle that "trade follows the loan." The magnitude of European investment in the new countries is almost as difficult to grasp as astronomical dimensions. Sir George Paish in the last annual of the *Statist* estimated that upwards of $40,000,000,000 of the capital had been supplied to the less developed countries by the five lending nations of the world, Great Britain, Germany, France, Belgium, and Holland. The investment of this vast sum has enriched both borrowers and lenders. The aggregate value of the imports of the five lending nations two generations ago was less than $1,250,000,000. Largely owing to the impetus given to industry by the advance of capital for development these same five countries are now buying $10,000,000,000 worth of goods annually from other countries. On the basis of the London stock exchange listings, British investments in Latin America are estimated at $5,800,000,000, yielding an annual return of more than $200,000,000. The purchases of the United Kingdom from Latin America in 1912 were only slightly in excess of $300,000,000 and the investment returns paid nearly two-thirds of the bill.

Investing power is a national asset. It can be utilized when other advantages, such as cheap labor, cheap raw material and improved machinery have been reduced to a common factor and cancelled. We are a nation of borrowers. So was Germany when she started to build up her foreign trade. She took advantage of her high credit to borrow at low rates, in order to have funds available for her customers at higher rates. The big returns on these advances rest on the principle that the obligation of the borrower is not confined merely to the repayment of the debt.

I propose one other important new piece of machinery which will help us greatly in our quest for trade expansion—the insurance

of contracts. By this I mean that trade organizations, or insurance companies created by them, shall insure the contracts for delivery of goods that they sell. What I mean is this: Every man who buys a bill of goods from the United States should get with the purchase an insurance policy which will insure his getting, within the agreed upon time, the quantity and quality up to sample of goods he has ordered, or else an agreed upon indemnity which will make up for the loss which the failure to fulfill the contract may have occasioned.

Connected with this should be a system of arbitrating on the spot any differences that may arise between buyer and seller. As the insurance company would have the right of recourse to the producer, the cost of such insurance would be comparatively trifling and could be paid without any hardship.

On the subject of adapting American products to foreign ideas, United States Consul General at Large, J. E. Dunning, has this to say:

> The requisite for permanent foreign business is a genuine superiority in the goods themselves—a superiority so obvious that it will always stand above mere price, terms and distances of deliveries. Cheapness never has been, and never need be, the distinctive feature of American export goods. High quality of the maximum of service are the best assets for American exporters and it is on these features that they have made their way where they have succeeded and can continue to do so. This is equally true of automobiles, of typewriters, office supplies, machine tools, or novelties. Europeans can compete with Americans in cheapness, but no one has equalled us, or will be likely to do so, in factory refinements.

The need for American ships to transport American products has not yet become a commercial ideal with us. Until that time comes our goods will continue to be taxed with higher freight rates than Europe pays. The tonnage assembles where commerce is most active and commerce above all things has a habit of moving along the lines of least resistance.

If the American genius for organization, already demonstrated in the domestic field, is really about to be concentrated on the extension of oversea trade, many existing obstacles will be removed. The courage of our industrial leaders and the common sense of the people at large warrant such a prophecy. Sacrifices must be made, but these have no terrors. Notwithstanding our limited experiences, we have already learned that, in the game of world commerce, psychology plays a part almost equal to that of economics.

BOOK DEPARTMENT

County Government

For the first time within the memory of civilized man, county government was made the subject of a state-wide conference, at Schenectady, N. Y., November 14–15, 1914. The proceedings of this conference have just been published and comprise some dozen addresses by specially qualified men on various phases of county administration, and proposals for its reform. All the speakers agreed that county government, at least in New York state, was a proper subject for treatment at the hands of the constitutional convention to the end that administrative responsibility and more effective popular control might be established.

Among the subjects treated at this conference were county audit, county charities, county courts, tax administration and county constabulary. Copies of this pamphlet may be had by addressing the writer at 381 Fourth Ave., New York.

County government as a field of critical and constructive study has been opened up in a number of political science magazines. Among this number may be counted the January number of *Political Science Quarterly*, directed particularly to the needs of the New York constitutional convention, and the August, 1914, number of *The American Political Science Review*.

A number of organizations in different parts of the country are, from time to time, making important contributions to the subject. The Tax Association of Alameda County, 803 Oakland Bank of Savings Building, Oakland, Cal., the Citizens Federation of Hudson County, 537 Summit Ave., Jersey City, the Bureau of Public Efficiency, 315 Plymouth Court, Chicago, the Westchester County Research Bureau at White Plains, the Civic League of Cleveland and the National Short Ballot Organization, 381 Fourth Ave., New York, have produced studies of various county offices, methods and forms of organization. The relation of county government to charities and corrections has been detailed from time to time in the *Survey*.

The only book on the whole subject to date is the volume of The Annals for May, 1913.

H. S. Gilbertson
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NOTES

Böhm-Bawerk, Eugen von. *Kapital und Kapitalzins.* Pp. xxxv, 747. Price, M. 18. Innsbruck: Verlag-Abteilung der Wagner'schen k. k. Universitäts-Buchhandlung, 1914.

The original editions of this monumental treatise appeared in 1884. Most Americans know it in English translation. A second edition appeared in 1900.

This gave attention to aspects of current economic theory. The present, final edition brings the discussion down to date. Much of this is controversial in tone; but in the discussion of individual views, Böhm-Bawerk never forgets that he is writing a *history* of interest theories.

BRINTON, WILLARD C. *Graphic Methods for Presenting Facts.* Pp. xii, 371. Price, $4.00. New York: Engineering Magazine, 1914.

This book was written with the idea of furnishing a handbook of graphic statistics for the use of persons who may not have had technical training in statistics, but who constantly have need of correct methods of presenting data in graphic form. It is so arranged that the substance of the book may be obtained by examination of the illustrations and titles without reference to the text. Brief criticism is offered in the subtitles and a fuller criticism in the main text. This is the first volume which has been devoted exclusively to the field of graphic presentation and the results are well worth the attention of students of statistics.

COLSON, M. *Railway Rates and Traffic.* Translated from *Transports et Tarifs* (3d Ed. 1907) Ed. by Charles Travis. Pp. viii, 195. London: G. Bell and Sons, Ltd., 1914.

One of the standard works on railroad traffic and rates is Mr. C. Colson's *Transports et Tarifs*, the first edition of which was issued in 1892. This is a translation by Messrs. Charles Travis, L. R. Christie and G. Leedam of portions of the third edition which was issued in 1907, thereby making it more readily available in English-speaking countries. Part I, which deals with the economic considerations determining freight charges, although based upon the French viewpoint, contains a clear statement of rate principles very similar to those which have long been expounded by the traffic men of American railroads. Parts II and III contain a description of freight rates in France, Great Britain, the United States, Germany, Austria-Hungary and Belgium. Part IV contains Mr. Colson's general conclusions.

CROCE, BENEDETTO. *Historical Materialism and the Economics of Karl Marx.* Pp. xxiii, 188. Price, $1.25. New York: The Macmillan Company, 1914.

It is the purpose of these essays to disentangle the true from the false in the discussion of Marxism. Croce is a critical Hegelian, and because of this Hegelian background, he is able to solve many difficulties in Marx arising out of his relation to Hegel. Croce reaches the conclusion that Marx was an economist and not a moralist, and that the moral judgments of socialists are quite distinct from any scientific examination of economic processes. As for the labor exploitation theory, Croce shows that after the elimination of private capital, which can be collectivised, there still remain obstinate individual differences of ability which cannot be collectivised. A monopoly element of this sort is likely to be a permanent one under any scheme of social organization.

DAWSON, WILLIAM H. *Municipal Life and Government in Germany.* Pp. xvi, 507. Price, $3.75. New York: Longmans, Green and Company, 1914.

DRYSDALE, C. V. *The Small Family System: Is It Injurious or Immoral?* Pp. 119. Price, $1.00. New York: B. W. Huebsch, 1914.

The author has collected the evidence and made a strong defense of the voluntary limitation of the birth-rate. Contrary to public pronouncements on the subject, he finds clergymen and physicians uniting with public citizens generally not only in practicing but also in approving voluntary limitation of the size of families. Instead of considering it unhealthful or immoral, he regards it as the solution of the problems of poverty, sickness, crime and immorality. The book is a strong defense of neo-Malthusianism.

ELIOT, THOMAS D. *The Juvenile Court and the Community.* Pp. xv, 234. Price, $1.25. New York: The Macmillan Company, 1914.

This book attempts to forecast the development of the juvenile court, and to analyze the proper functions of a community on behalf of its neglected children. The purpose of this analysis is to further progress toward a more logical and coherent juvenile court procedure.

The author has personally visited most of the leading juvenile courts of the country. He gives interesting and valuable facts about detention homes, police, politics, volunteers, clinics, and, in general, the present status of these several courts. For this reason, as well as for the statement of its main thesis, it is suggestive and timely.

FERRERO, GUGLIELMO. *Between the Old World and the New.* Pp. vii, 383. Price. $2.50. New York: G. P. Putnam's Sons, 1914.

Though written earlier, this volume follows the publication in America of *Ancient Rome and Modern America* by the same author. In this the author presents in dialogue form the general theme, *viz.*, the conflict of ideals; the different concepts of progress, etc., between European and American civilization. His characters are both real and fictitious. His discussions cover a wide range of economic, social and philosophical subjects. The book is a most fascinating combination of the discussion of up-to-date ideas in an ancient literary form.

FURLONG, CHARLES W. *The Gateway to the Sahara* (New and Enlarged Edition). Pp. xxx, 363. Price $2.00. New York: Charles Scribner's Sons, 1914.

This attractive account of Tripoli, first published in 1909, has been enlarged by the addition of two new chapters on the Italian Conquest. To the book that so well has described the physical features of this interesting land, the odd and fascinating customs of the people, its industries, commerce, and economic resources, is now added the latest events concerned with the Italian occupation. The changes that have been brought about by the process of colonization are described and the difficult problems Italy has to meet, if the colony is to be of economic value—problems of water supply, labor, agriculture, administration, etc.,—are discussed.

GETTELL, R. G. *Problems in Political Evolution.* Pp. iv, 400. Price, $2.00. Boston: Ginn and Company, 1914.

Not laying any claim to originality of subject matter, this work will prove valuable to readers who wish a general survey of some of the more important

problems of political science. Most of the topics discussed lie in the field of political theory, though by no means all involve primarily questions of political evolution. The authorities used cover a wide field and range far beyond those cited in the average elementary work on politics. There is no attempt, however, to make the treatment exhaustive, the author's intent evidently being to give only a general review based on the standard recognized authorities. In the use of references authors are mentioned only by surname and frequently though specific points are under discussion the citation is only the work without chapter or page. It is to be regretted that the volume contains no critical bibliography to guide the reader in further study in the fields covered.

GOLDER, F. A. *Russian Expansion on the Pacific, 1641–1850.* Pp. 368. Price, $5.00. Cleveland: The Arthur H. Clark Company, 1914.

There are few fields more unexplored than the history of Russian expansion on the Pacific. Dr. Golder's study is based on original sources and presents a highly interesting account of a number of phases of this movement culminating in the voyages of Behring and the exploration of the Alaskan coast. Under analysis of the original documents the exploits of these pioneers lose much of their romance but nothing of their interest as examples of daring and hardihood. Most of the heroes become men of very ordinary and often brutal impulses. Plunder bulks larger than fame or devotion to the spread of the empire. There are some welcome exceptions among those whose interest in the expeditions was scientific rather than mercenary.

Those who are interested in the growth of the power of the Russian empire, especially in its effect on the early history of our outlying territory, Alaska, will find this monograph of decided value.

GRAHAM, STEPHEN. *With Poor Immigrants to Ameria.* Pp. xviii, 306. Price, $2.00. New York: The Macmillan Company, 1914.

This is a volume of tramp travel sketches of a journey made by the author from London to Chicago and is similar in character to a former work, *With the Russian Pilgrims to Jerusalem.* Only in the steerage of the giant Cunarder from London to New York is the story directly connected with immigrants. The description of the tramp from New York to Chicago is written in a most pleasing style and is filled with glimpses into American home life, industry, customs and ideals, with a charming mixture of the author's individual psychology. Incidentally, the "poor immigrant," and especially the Russian immigrant, figures in the narrative. Observations of American life by an Englishman are always interesting reading.

HOLLAND, A. W. *Germany.* Pp. viii, 312. Price, $2.00. New York: The Macmillan Company, 1914.

Mr. Holland gives us a brief, readable sketch of the rise of the peoples now included in the German empire. The story ends abruptly with the Franco-Prussian war. Only about ten pages treat of the remarkable expansion of national life in the last forty-five years. While the volume gives a background on the

whole well-balanced, for a study of present-day Germany it lacks the interest which a book would have which discussed the life of our own generation. In a book intended to inform the general public on the development and position of a great modern nation, the neglect of present-day economic and political developments is hard to excuse.

HULME, E. M. *The Renaissance, The Protestant Revolution and the Catholic Reformation in Continental Europe.* Pp. 589. Price, $2.50. New York: The Century Company, 1914.

This book, besides offering distinct attractions to all who are interested in the subject, should prove a valuable text for advanced college classes. Every important phase of development from the close of the thirteenth to the beginning of the sixteenth century, whether intellectual, religious, economic, political, or artistic, is carefully reviewed. Arrangement and proportion are excellent, the style is unpretentious and direct and the flow of ideas clear, while an abundance of interesting and well-selected detail pleasantly softens the outline. One wonders at times whether personal portraiture would not have contributed to the more exact explanation of complex personalities which the author clothes in ideas and actions alone; but so great and so admirable has been the work of condensation that little ground for complaint remains. From the teachers' point of view one must deprecate the absence of any bibliographical lists and of the occasional footnotes which might have qualified such debatable statements as those concerning the attitude of Erasmus toward the church (p. 355) and his indifference to financial support (p. 221). That the author's obligations to his master are even greater than his dedication would lead one to assume has been pointed out elsewhere; and this inadvertence is the more to be regretted in that he has built with such marked skill upon the great foundations which he was fortunate enough to possess.

JAMES, HERMAN G. *Applied City Government.* Pp. viii, 105. Price, 75 cents. New York: Harper and Brothers, 1914.

A handbook on the principles and practices of city charter making, giving terse, pertinent discussions of the more important parts of charters, with a draft of a model charter provision for each of the subjects discussed. These subjects include powers, nomination methods (in which the author recommends the preferential ballot), the recall and direct legislation (for which the author feels that a petition of 35 per cent of the city's voters should be required), the form of government (essentially commission), the administrative officers, the city's finances, the budget and budgetary procedure, restrictions on bonds and franchises. Not all would agree with many of the recommendations, such, for instance, as that citizens should have "daily opportunities for hearings" on any matters in the budget in which they are interested during "a period of two weeks." All would probably agree that responsibility for the budget should be centered in the mayor, but in the average small city certainly daily hearings of two weeks' duration would scarcely be necessary. Franchises, says the author, as well as bond issues, should be subject to popular ratification. The volume is to be commended to all interested in practical charter-making.

JUDSON, KATHARINE B. (Compiled by). *Selected Articles on Government Ownership of Telegraph and Telephone.* Pp. xl, 204. Price, $1.00. White Plains, N. Y.: The H. H. Wilson Company, 1914.

LEWIN, H. G. *British Railway System.* Pp. vii, 67. Price, $1.00. New York: The Macmillan Company, 1914.

Mr. Lewin's book on the *British Railway System* contains an outline of the early development of British railways from their first beginnings to the year 1844. Its value lies principally in (1) its historical maps and discussion, and (2) its bearing upon the proposed nationalization of British railroads. Railroad nationalization in the absence of additional legislation is based upon an act of the year 1844 which empowered the state after the lapse of twenty-one years from date of charter to purchase any railroad constructed after the enactment of this law.

It is Mr. Lewin's purpose to show that numerous roads were chartered and built prior to 1844 and that "in the event of state purchases, the terms and arrangements with regard to these lines would have to be subject to entirely new legislation."

LOWELL, A. LAWRENCE. *The Governments of France, Italy and Germany.* Pp. vii, 217. Price, $1.25. Cambridge: Harvard University Press, 1914.

A separate publication of several chapters of the standard work by President Lowell on the Governments and Parties of Continental Europe has been issued by the Harvard University Press. Some of the most important portions of the two volumes have been made available for general reading and regular class use. The chapters of the larger work, all selected from volume 1 of the series, are as follows: Chapter I, France: Institutions; Chapter II, France: Parties; Chapter III, Italy: Institutions; Chapter V, Germany: Structure of the Empire.

The recent work is a reprint of the original material with certain minor changes and modifications. Among these is the omission of approximately twenty-five pages relating to the history of political parties in the Third Republic. The note relating to administrative courts (pp. 59 and 60) has been revised and there is also a slight revision relative to the number and duration of French cabinets (pp. 127–128 original volume; 104–105 the revised copy).

It is to be regretted that President Lowell has not revised more completely the material contained in his very able presentation of European governments. The fact that this material can be reissued with so few changes shows in a marked degree the thoroughness and comprehensiveness with which the subject was covered in its original presentation and accounts for the fact that this work has since its appearance, remained the standard treatment of the governments and parties of Continental Europe.

MCCALL, SAMUEL W. *The Life of Thomas B. Reed.* Pp. xiii, 303. Price, $3.00. Boston: Houghton, Mifflin Company, 1914.

The figure of Thomas Brackett Reed stands out above that of any other congressman of his time. It is unavoidable for this reason that any biography of

him should subordinate the treatment of the merits of public questions to a discussion of his course in dealing with them. This the author has done in a way both discriminating and interesting. Reed's work in shaping the practical processes of government stands out in bold relief throughout.

MORSE, EDWARD LIND (Ed. by). *Samuel F. B. Morse: His Letters and Journals.* Pp. xxxvi, 988. Price, $7.50. Boston: Houghton, Mifflin Company, 1914.

An authoritative and well-balanced biography of the inventor of the telegraph, written by his son. The work abounds in extracts from letters, diaries and sketch-books that throw into clear relief the life of a man who would have been eminent in his day as a scientist and artist even if he had never attained fame as an inventor.

MUNRO W. B. *Selections from the Federalist.* Pp. vi, 202. Price, $1.00. Cambridge: Harvard University Press, 1914.

Pertinent and typical excerpts from *The Federalist* on the dangers of disunion and the need of a strong federation; the inadequacy of the old confederation, and the difficulties encountered in framing the new constitution; the conformity of the new constitution to republican principles, and the justification of the military, diplomatic, commercial and other powers conferred upon the federal government; a comparison of the powers of federal and state governments; the system of checks and balances, including an examination of Montesquieu's Doctrine; the objection to a complete separation of powers, and the necessity for checks and balances.

The selections are chosen with judgment. The volume makes a splendid handbook for class-room and general use. In the introduction is a terse historical summary of the occasion for the letters and an estimate of their value.

PERRIS, GEORGE H. *The Industrial History of Modern England.* Pp. xix, 603. Price, $2.00. New York: Henry Holt and Company, 1914.

This is not a dry recital of events, but an interpretation of the spirit of the economic history of Great Britain during the last one hundred and fifty years. The tone throughout is humanitarian. *Doctrinaire* political economy is consigned to the slag-heap, and a philosophy of social reform is made to appear in every chapter. "Unrestrained competition has proved a curse, not a blessing. . . . Society must be organized if the greatest good is to reach the greatest number."

PERRIS GEORGE H. *The War Traders.* Pp. viii, 168. Price, 1s. London: National Peace Council, 1914.

Mr. Perris presents in a series of brief chapters the evidence to show that the supplying of war materials has become internationalized. He shows that the armament trust has systematically set out to exaggerate the consciousness of nationalism and to stimulate the building of dreadnoughts and the outfitting of armies for defense, all of which plays into the hands of the trust which supplies

all parties with the instruments of destruction. War scares are hatched whenever contracts are needed, old "models" are rapidly replaced by newer and more destructive and powerful cannon and battleships while the common people pay the cost. These arguments are an illuminating supplement to the arguments presented in Mr. Norman Angel's *The Great Illusion*.

ROSENBLATT, BERNARD A. *The Social Commonwealth*. Pp. 189. Price, $1.00. New York: Lincoln Publication Corporation, 37 E. 28th Street, 1914.

"Is it possible for us to construct new 'Cities of Refuge' for those thousands of honest workers who do not find a place in our cumbersome economic system?" With such a question in mind the author lays plans for a "labor commonwealth" where a haven of safety is offered. In addition he proposes an "industrial commonwealth" which will compete with present-day industries thereby decreasing the cost of necessaries and automatically fixing a maximum price for consumers. Coupling the two plans he establishes his "Social Commonwealth." The book is interesting in that it beams with the spirit of utopianism. The reader, however, is constantly in doubt as to whether our human kind ever can be shaped into the ideal moulds the author outlines.

ROYCE, JOSIAH. *War and Insurance*. Pp. xlviii, 96. Price, $1.00. New York: The Macmillan Company, 1914.

STRUNSKY, ROSE. *Abraham Lincoln*. Pp. xxxv, 331. Price, $2.25. New York: The Macmillan Company, 1914.

It has not been the purpose of the author of this book on Lincoln to discover new material, but rather to present Lincoln in a "new historical perspective." The author seems to have been impressed with the thought of Lincoln as a man rather than as a statesman or as the "great liberator." She has viewed Lincoln as "part and parcel of his class, the small homesteader, who claimed an equal opportunity in the virgin forests." It is doubtful whether much is to be gained by emphasizing the life and times of Lincoln before the debate between Lincoln and Douglas made Lincoln a national character. Nevertheless, the book is well done and on the whole well balanced. The criticism here made applies to the first third of the volume. In the latter two-thirds of the work, Lincoln's constructive statesmanship is presented in a clear and accurate manner.

TOWER, CHARLEMAGNE. *Essays Political and Historical*. Pp. 306. Price, $1.50. Philadelphia: J. B. Lippincott Company, 1914.

Over half of this volume of essays is composed of studies of the operations of Cornwallis and Howe during the Revolutionary War. There is a very sketchy discussion of the relation of the United States to the arbitration movement and a well-balanced popular presentation of the development and importance of diplomacy as a profession. The treatment of the treaty obligations of the United States relating to the Panama Canal is too brief and categorical to give a proper appreciation of disputed points. A chapter on some modern developments of

international law emphasizes the protection of citizens abroad and the rules of the Declaration of Paris. The best discussion is that of the European attitude toward the Monroe Doctrine.

TREXLER, HARRISON ANTHONY. *Slavery in Missouri, 1804-1865.* Pp. viii, 259. Price, $1.25. Baltimore: Johns Hopkins University Press, 1914.

This is another of the useful monographs from the careful researches of Johns Hopkins. The negro population increased steadily both by immigration and natural increase until in 1860 there were 3,572 free colored, 114,931 slaves as compared with 1,063,489 whites. As an economic factor, slavery was largely a domestic rather than a commercial system. The "slave before the law," though not always a chattel, had no property nor few other rights. The social status was about that of slaves in Virginia and Kentucky. There was considerable anti-slavery sentiment which made the slavery issue a cause of division in the churches and of a long bitter contention in politics. New light is thrown on Senator Benton's opposition to slavery and his political downfall as well as the part of Missourians in pushing "squatter sovereignty" through Congress and in trying to place Kansas and Nebraska in the slave column. A chapter on manumission, colonization and emancipation closes the discussion. A valuable bibliography, mainly of original material, is attached.

VECCHIO, GIORGIO DEL. (Translated by John Lisle.) *The Formal Bases of Law.* Pp. lvii, 412. Price $4.50. Boston: Boston Book Company, 1914.

WICKWARE, FRANCIS G. (Ed.) *American Year Book for 1914.* Pp. xviii, 862. Price, $3.00. New York: D. Appleton and Company, 1915.

WILLIAMS, EDWARD HUNTINGTON. *The Question of Alcohol.* Pp. 127. Price, 75 cents. New York: The Goodhue Company, 1914.

Dr. Williams discusses the "other side" of the alcohol question with a saneness and freedom from prejudice sure to be welcome to those who, like himself, have been appalled at the flood of unscientific literature on the subject. His book is a plea for the presentation of scientific truth about alcohol, and three of its five chapters are given to weighing and analyzing certain sweeping statements of "reformers" in regard to the relation of the use of alcohol to crime, insanity and disease. The author criticizes sharply the so-called "temperance instruction" given in our schools and shows that much of it is based on unverified conclusions and, through gross exaggeration, is apt to defeat its very purpose. In the chapter on *The Drug Habit Menace*, Dr. Williams shows that the use of habit-forming drugs is increasing at an alarming rate, especially among the illiterate negroes and whites of those states that have laws prohibiting the sale of liquor.

The conclusions the author arrives at are definitely constructive in character. He repeats the often-demonstrated fact that legislation proves of little value except as it is supported by the opinion of an intelligent majority in the community. He urges that we cease to regard the alcoholic as an offender, and advises that plans be made for the medical treatment of this as of other diseases. He

advocates the Scandinavian plan for grading the licenses for the sale of liquor and agrees that certain strict regulations should be enforced in regard to the sale to minors and drunkards. Most important of all, he believes that the municipality, aided by the churches, and philanthropic bodies, must provide counter attractions in the way of recreation centres, gymnasia, etc., that will in time crowd out the saloon. Certainly the book is thought-provocative and more than worth an hour's study.

WITHERS, HARTLEY. *Poverty and Waste.* Pp. ix, 180. Price, $1.25. New York: E. P. Dutton and Company, 1914.

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THE TOTAL DISABILITY PROVISION IN AMERICAN LIFE INSURANCE CONTRACTS

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With an Introduction

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INTRODUCTION

Life insurance constitutes the only safe method of protecting the family against the privations that may be occasioned by the untimely death of the breadwinner. Its function is to change uncertainty into certainty. Unfortunately, however, many life insurance contracts do not provide for relief in the event of the insured's total disability, and to this extent life insurance fails to perform its full mission in that it does not absolutely eliminate the element of uncertainty. That the risk involved is important is clearly demonstrated by Dr. Mudgett in the data which he presents. Thus, on the average, about six out of one hundred persons insured at age twenty-five become totally and permanently disabled during the following 38.8 years, the life expectancy at that age; while at age forty the corresponding probability amounts to nearly fifteen per cent and at age fifty to over twenty-six per cent.

We all know of instances where men with families depending upon them have been incapacitated from earning a living because they were the victims of accident, insanity, paralysis, tuberculosis, etc. Although amply supplied with life insurance, no special proceeds are available until death actually occurs, which may not be for years. In the meantime the disabled person may be a burden on his family and, economically speaking, as good as dead. Had he died the family would have received the face value of his insurance; but since he continues to live it may be necessary to sacrifice valuable insurance policies—and their value is now more apparent to him than ever before—because in the struggle to provide medical care and sustenance for himself and family it becomes impossible any longer to pay the required premiums. Under such circumstances, it is clear, the family stands in need of a special income to meet its increased burdens, instead of being obliged to use up what little surplus there might be in the struggle to keep the household going and to keep existing policies alive.

Situations like those referred to, it must be admitted, should be avoided, and any life insurance policy which does not provide substantial relief in the event of total disability does not fully perform

its function of changing uncertainty into certainty. In the writer's opinion it should be the mission of life insurance to grant such relief. Total disability clauses in life insurance policies constitute a perfectly proper and sensible provision. Endowment policies, having for their purpose provision against old age, and limited payment policies, providing for a cessation of premium payments in the later years of life, are sold by all the companies and have been warmly recommended in their literature. Why then is it not as reasonable to have life insurance policies provide for the cessation of premiums or the payment of the proceeds in installments when the insured becomes totally incapacitated, as it is to issue endowment and limited payment policies which aim to protect the insured against that period of life when his activity will naturally decline? Life insurance companies also pride themselves upon the liberality of their policies—that they provide days of grace in the payment of the premium, contain no restrictions as to residence, travel or occupation, and are incontestable for any reason whatsoever after one year from date of issue. Now, if it is reasonable to give assurance to the policyholder of the certainty of his protection along all these lines, why is it not reasonable to make the policy still more certain by including a comprehensive disability clause? Nor can it be argued that such action on the part of the regular life companies represents an unjust invasion of the field developed by accident and health companies. Accident and health policies, as issued in the United States, cannot be maintained at the option of the insured. They are written for short periods only and are subject to cancellation at the option of the company, while life insurance contracts afford the advantage of being unilateral in character and subject to termination only at the option of the insured.

As Dr. Mudgett explains, the growth of the total disability benefit in life insurance has been remarkably rapid during recent years. Although the benefit was practically unknown twenty years ago, considerably more than a majority of American companies grant the benefit today in one form or another. But upon a careful examination of the numerous disability clauses in use and the various problems that surround the particular risk, Dr. Mudgett reaches the conclusion that while some "have behind them the very best of careful and thoughtful consideration of the problems involved" many are imperfect or worthless and represent no other motive for

their issue than the furnishing of a "talking point" to meet competition. Dr. Mudgett has clearly shown, to quote his own words, "that the risk of total and permanent disability is a real and tangible one, and that its occurrence may easily endanger the permanence of one's insurance." It is to be hoped, therefore, that the numerous defective disability clauses now in use will be eliminated, and that all the companies will soon recognize the need of protecting their policyholders against the risk of total disability by incorporating in their contracts a liberal disability benefit.

Many of the companies now granting the benefit seem to proceed on the theory that it is good business to make the disability clause promise so little that it can be given free or at a nominal cost. This seems to the writer a most unfortunate attitude to take. If the risk involved is a real and substantial one it should be fully covered by the contract, and the company should charge, and has the right to charge, what the protection is worth. It is not intended here to describe in detail the nature of the numerous benefits now granted by the several companies because these are fully outlined by Dr. Mudgett. Suffice it to say that under the most satisfactory disability clauses now issued, the benefit, with comparatively few exceptions, consists of a waiver of premiums or the payment of the policy in ten or twenty installments. These benefits represent real assistance to a policyholder who is rendered incapable of earning a living. The waiver of premium benefit assures the maintenance of the policy; while the payment of the policy in installments furnishes a fund for providing medical care and sustenance for the disabled policyholder and his family.

But, as already stated, the family, in the event of the breadwinner's disability, stands in need of an especially large income to meet its increased burdens. For this reason the writer feels that the disability clause should provide, (1) for the payment of the policy in ten rather than twenty installments, and (2) in case of survival when the last payment has been made for a continuation of the installments throughout the disabled policyholder's life-time. The ten-installment plan is suggested instead of twenty payments because the latter, in order to furnish a substantial allowance, will require an amount of insurance larger than the average person feels able to carry. The continuous installment feature is suggested because it can be granted for a very small additional premium, the

average life of a person following total and permanent disability being said to be somewhat less than two years. Moreover, all disability clauses now in use define disability as "inability to perform the duties of any occupation for gain or profit." A strict application of this definition is not only apt to lead to disagreement between policyholder and company, but may in many cases fail to afford the relief which the dictates of justice hold to be valid. Rarely will a person be so disabled for any length of time as to be totally incapable of making some little income. But the real question is: Is the policyholder so incapacitated as to be rendered incapable of pursuing any longer his regular vocation; and, although still able to perform some sort of service in some new occupation, is he able to earn more than a mere fraction of his former income? The writer agrees with Dr. Mudgett's conclusion that disability should be defined by the companies with reference to the insured's particular occupation, as is now done by some accident and health policies.

S. S. Huebner.

University of Pennsylvania,
April 5, 1915.

PREFACE

The following study could not have been made without the cordial coöperation of life insurance companies and their officials throughout the United States. The author wishes gratefully to acknowledge his indebtedness to them for information furnished concerning the use of the disability clause and for copies of contracts including the clause. Especial acknowledgment is due to Mr. Arthur Hunter of the New York Life Insurance Company, Mr. Franklin B. Mead of the Lincoln National Life and Mr. Sidney H. Pipe of the Independent Order of Foresters for copies of their articles on the actuarial phases of disability insurance. Upon several occasions requests were made for advice and suggestions from Mr. Henry Moir and Mr. Miles M. Dawson and they invariably received a prompt response.

But greatest of all are my obligations to Professor Solomon S. Huebner, head of the Department of Insurance, University of Pennsylvania. To him belongs the credit of first suggesting a study of disability insurance and his advice and criticism were freely offered and generously given. He has read the proofs of the manuscript entire, and to his sympathetic criticism will be due, in large part, any credit that may attach to the present volume.

BRUCE D. MUDGETT.

University of Pennsylvania,
April 6, 1915.

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PART I

DISABILITY INSURANCE—HISTORICAL AND STATISTICAL

CHAPTER I

Historical Development of Disability Insurance

The practice of granting insurance against total and permanent disability represents one of the latest innovations of American life insurance companies in the liberalizing of their contracts. On October 16, 1896, the Fidelity Mutual Life Insurance Company of Philadelphia issued the first policy of this kind on the life of its president. The movement toward the incorporation of the disability clause in life insurance contracts has spread with such rapidity that by January 1, 1912, at least 135 companies out of the 239 doing business in the United States granted a disability clause in some form.

Early Experiments with Disability Insurance

It is of interest, in view of the importance which this feature has recently assumed, briefly to trace its development. The first experiments with insurance against total and permanent disability[1] were made by mutual aid societies in connection with the insurance of miners in Germany and Austria in the eighteenth century. The need of such benefits was naturally manifested first among hazardous occupations such as mining. As Germany developed industrially during the nineteenth century the movement spread to other classes of workers and many funds were established, particularly among railway corporations. Out of these isolated attempts on the part of private associations to solve the problem grew the German invalidity insurance law of 1889. This law was incorporated in 1911 with the national sickness and accident insurance laws of that country into a complete scheme of insurance against

[1] These historical notes have been taken largely from an article by Mr. Franklin B. Mead in the *Transactions of the Actuarial Society of America*, 11:304.

the most important industrial hazards. Governmental schemes of insurance against invalidity are now found in Austria, Belgium, France, Germany, Great Britain, Italy, Russia and Sweden.

In Great Britain sickness disability benefits, whether caused by disease or accident, have been granted by the Friendly Societies. The Friendly Societies have not attempted to distinguish permanent from partial disability. But the experience of these societies has been carefully analyzed by actuaries with reference to the duration of disability, so that there has resulted a considerable volume of data bearing upon what is known in the United States as total and permanent disability.

In America a number of trade unions have granted these benefits for many years, as have also the fraternal societies. In fact our best statistics regarding total and permanent disability are taken from the records of two of the larger fraternals.

Disability Insurance in Life Insurance Contracts

Disability insurance, incorporated in a life insurance contract, is a later development. The credit for this new departure likewise belongs to Germany, where such a contract was first issued in 1876. Thereafter it did not develop among the German companies with the rapidity shown at a later date in America. In 1900, out of 45 companies in the Empire, 17 were issuing it. Since 1900, however, most of the important companies in Germany have adopted the disability provision in one or both of two forms. First, in connection with regular life contracts, it is issued with limited payment life, endowment or straight term policies, the benefits granted being either waiver of premium or the maturity of the policy, to be paid in the form of an annuity of ten to twenty payments. The second form, the purchase of a life annuity, is granted as an independent contract and pays the insured an annuity from the time of disability until death. This latter contract may be paid for by a single premium or by periodic payments, each payment creating the right, after three years, to an annuity based on the age at which the payment is made. Under both forms the disability insurance ceases at age sixty-five.

The Russian companies issue an unusual type of policy including this clause. They will issue participating policies and then grant the insured, upon his relinquishing the right of participation,

the privilege of receiving invalidity insurance in lieu thereof. In case of disability, premiums cease and the policy matures, the insured receiving immediately a cash sum of fifty to seventy-five per cent of the sum insured, the remainder, if any, to be paid at death or at the end of the endowment period. The participating policy is loaded to the extent of about ten per cent of the non-participating premium, thus showing about what the benefit costs.

Development of Clauses Among American Companies

As already explained, the disability clause has been a part of the life contracts of American companies only since 1896, and at the time of writing there are, including two large Canadian companies which write insurance in the United States, 135 companies which grant the clause. The importance which this clause has assumed in the brief space of 16½ years can better be shown by comparing the relative amount of insurance represented by the companies granting it and by those which do not grant it. The Insurance Year Book shows that on January 1, 1912, the 239 companies of the United States had insurance in force (not including industrial business) to the amount of approximately $14,500,000,000. Add to this the insurance of the two Canadian companies included in this study, and it gives a total of over $14,800,000,000. Of this total insurance in force, the 135 companies granting the disability clause with their contracts had $11,700,000,000, or approximately 79 per cent of all insurance in force by American companies. It is apparent that these figures are slightly unfair in including only two Canadian companies in the list; but this inquiry has not extended generally to Canadian companies granting the clause. By eliminating the two Canadian companies from the comparison, however, over 78 per cent remains. The following table shows the exact figures:

A. Total for 239 companies of United States (January 1, 1912,) (ordinary business)..	$14,577,131,497
B. Including 2 Canadian companies doing business in United States.....	229,026,360
C. Grand Total	$14,806,157,857
D. Total of 135 companies granting disability clause (approximately).....	11,704,645,000

Proportion of "D" to "C"—79 per cent.

It is not desired to leave the impression that this eleven and three quarters billions of insurance represents the amount covered by the disability provision. It represents all the insurance in force by these one hundred and thirty-five companies and many of them refuse to apply the disability clause to old policies. Some companies have announced their intention of including old policies and some do so when requested but are not advertising the fact. It would be interesting to know just how much insurance is now covered by the new clause but it would be impossible to determine it at present without a personal canvass of all the companies concerned.

CHAPTER II

Reasons for and Objections to the Disability Clause

Motive of the Agent and the Company—Competition

The extraordinary growth in popular favor which the disability clause has shown justifies the belief that there are very good reasons for its existence. The reason for its adoption so generally may lie with the company, the agent or the policyholder. Of course the disability clause must ultimately be tested by its utility in serving the public interest as an insurance measure even though that may not be the immediate reason for its popularity. If a history of life insurance shall ever be written, certainly no more interesting phase of it will be found than the evolution of the life contract and the gradual liberalizing of its provisions. To take only a single instance, the granting of cash loans was bitterly opposed by a number of companies until they were forced either by statute law or by competition to grant such loans; then they reversed their position and, making a virtue of necessity, exploited their loan privileges to the limit of their advertising ability. This competitive struggle among life companies is always active and the wide-awake manager is always looking for some feature that will make an appeal to popular interest. Let us then look at the disability feature from the standpoint of the agent. The agent sells insurance by convincing his prospective customer that his company grants a better bargain than any other company on the market. To do this he *must have something to talk about* and any new feature which a number of keen competitors do not grant will tend to make his contract a good seller. There is no doubt that pressure from agents for a "selling feature" has induced many companies in the United States to make the disability clause a part of their contracts. This attitude on the part of the agent quickly reacts on the company. A great number of small companies have sprung up in recent years throughout the south and west and have written a considerable amount of their insurance in their immediate localities. Then they have extended their activities beyond the sphere of their local surroundings and have found that they must compete for

business. The appeal to patronize home companies which is of great value locally is of no avail when a company enters a new locality as a stranger. This is its opportunity to exploit a selling feature. But before long the larger companies, which solicit risks all over the United States, realize that the selling feature counts and they meet the competition of the smaller companies by introducing the new clause. The following figures bear out this statement. Of 135 companies issuing the disability clause 94 are small companies, each having on January 1, 1912, less than $10,000,000 of risks on its books; twelve are large companies, each having over $100,000,000 of insurance in force. These twelve began the granting of the disability clause as follows: one each in 1896, 1904, 1907, 1910 and 1911 respectively; three in 1912; one in 1913; while for three the information is not at hand. There is no doubt that competition has been a powerful weapon in the "progressive enlightenment" of these companies. The companies in question do not suffer by this statement, for their clauses are among the best.

A classification of the companies according to the year of organization shows even more certainly that these clauses were issued largely as a competitive measure. Of the 135 companies in question, 70 per cent have been organized since 1905, 78.6 per cent since 1901 and 21.4 per cent of them were organized previous to 1901. Is not this adequate proof that it is *the newer and smaller companies* which have taken up the new "selling feature" and that they have done it in order to meet competition?

Attitude of Officials of Companies

If statistical data are not sufficiently convincing, the attitude on the part of officials who have been frank enough to express their opinions will help in reaching a conclusion. An address was delivered September 6, 1912, before the American Life Convention at Chicago by Bascom H. Robison, President of the Bankers Reserve Life of Omaha, on "The Frills and Furbelows of Recent Years." He said in part, "It will be my pleasure to invite your attention to a few reflections concerning some of the trimmings which have been sewed on to policy contracts for purposes of ornamentation. . . . The average man . . . has a hazy notion that such things (real frills and furbelows) have to do with the ornamentation of the feminine gown. Without going into the subject deeply I find

that such things are *not essential to the main purpose of a gown*, their chief office being that of ornamentation; and everybody knows that ornaments are superficial things tacked on to an object for the sole purpose of attracting favorable notice. . . . We cannot associate such things with the true character of a policy contract, which must have real substance and *must be based upon enduring principles of equity and good conscience. . . . My opinion is that policy contracts of this description* (*i. e.* designed to be attractive and to meet competition) *are not only in the nature of a false lure but in some instances they threaten the perpetuity of the company issuing them.*"[2] The first example of ornamentation he cites is the total disability provision. Here is a frank admission that the disability clause has, in the minds of many insurance officials, no other purpose than that of ornamentation of the contract. It furnishes the talking point which the agent must have. If such be the case universally then the quicker we are done with this clause the better. Undoubtedly the speaker in the case referred to knew only too well the real nature of some of the clauses which have been adopted. The writer of the following probably had one of these "ornamental" clauses in mind: "There is a possibility for the said rider *appearing to the prospective applicant for insurance as more valuable than its actual cash worth.*"[3] More direct in its implications is the next: "*As ordinarily framed*, we do not believe there is any particular objection to including the feature in all kinds of policies, *as in most instances its provisions are so specific as to make the liability of loss to the company very small.*"[3] For brutal frankness in analyzing the clause of his own company, the following from a secretary-actuary eclipses them all and shows what is in the minds of too many officials when drawing up one of these clauses. He writes, "Is of no value to the insured practically. Is only another outlet for deception on the part of the agent. Merely a cheap selling feature. . . . We only use the rider in cases of competition. Is not a leader at all. . . . A law prohibiting it until more was definitely known as to equitable rates, etc., would be a good thing."

Motive of the Policyholder—Protection

If this has been the attitude of many companies which issue the disability clause, the question may well be asked, is there no

[2] The italics were not in the original.
[3] Do.

further justification for its introduction into life contracts than its value as a talking point? If not, we can agree with this official that a law prohibiting it would be a good thing. But let the question be approached now from the point of view of the policyholder. Is there any great likelihood that the perpetuity of his policy will be endangered by the occurrence of the event against which the new clause insures? Is permanent and total disability a risk of any consequence to the average policyholder? It will be readily understood that the idea back of the clause is to prevent the lapsing of a policy and the loss of insurance by that *living death* which leaves a man in a helpless condition so far as concerns the continuation of his insurance, if he is dependent on the income from his daily work; and in a condition which from his own viewpoint justifies the *maturing* of his policy or at least justifies freeing him from the burden of further premium payments.

The Risk of Disability

Statistics again must be called upon to aid in the solution of this problem and fortunately we have them in the experience of fraternal societies in the United States which have insured against the risk of total and permanent disability. The scientific basis for determining rates for this risk will be discussed later but it is necessary here to call upon some of the tables that will then be considered. Three American actuaries, Messrs. Arthur Hunter, Sidney H. Pipe and Franklin B. Mead, have worked out, from the experience of the Foresters and the Maccabees, tables of disability and of mortality among disabled lives. It may be admitted that the risks of fraternal societies are not as good on the average as those of the old line companies, but absolute accuracy is not necessary and if these results will show the probability of becoming disabled to the average member of a fraternal society the purposes of the illustration will be served. These actuaries have each computed tables showing the yearly probability of becoming disabled. But it is desired here to know the total probability that a person will become so disabled and therefore be compelled to lapse his insurance. The following table has been arranged from Mr. Mead's probabilities based on the Maccabees by using the following method. The denominator of the probability fraction equals the number *living and not* disabled at the required age; the numerator equals the

number becoming disabled during the life expectancy of a person at the given age. These fractions are then reduced to decimal form. For example, at age 40, Mead's table, there are 77,864 persons living and active. The life expectancy of a person aged 40 is 28.18 years. The number of persons becoming disabled within 28 years from the beginning of age 40 according to Mr. Mead's data equals 10,969. To this was added eighteen-hundredths (.18) of the number disabled during the 68th year of age ($=.18\times2443=440$) giving the total number disabled during the life expectancy, or 10,969 plus 440 which equals 11,409. The entire probability of becoming totally and permanently disabled, it follows, to a person aged 40 is $\frac{11,409}{77,864}$ or .1466. The results from Mead's tables for every fifth year are as follows:

Probability of becoming disabled within life expectancy:

Age	
20	.0460
25	.0604
30	.0803
35	.1080
40	.1466
45	.1977
50	.2652
55	.3573
60	.4758
65	.6134
70	.7477

Since the computation of these tables entails considerable work, results have been worked out from Mead's tables only. But to show that the results are fair and that they do not favor the result expected, namely, a high rate of disability, more than do the tables of Hunter and Pipe, the following comparison may be of interest.

Out of the number living and active at age 20, being 92,637 for Mead's and Pipe's tables and 92,483 for Hunter's (the slight difference in the latter being because it was engrafted on the American Experience table at age 15 whereas the other two began at age 20) the three tables show the following total number disabled:

At age	Mead	Pipe	Hunter
30	208	337	471
35	414	630	717
40	600	955	999
45	895	1322	1360
50	1255	1897	1842
55	1798	2646	2528
60	3091	3861	3618

The comparison stops at 60 since Hunter's disability table does not extend beyond that age. The result shows that had either Hunter's or Pipe's tables been used a greater probability figure would have resulted.

If these figures are justified as an estimate of the chance that a man will become totally disabled within the average length of life, the question of insurance against the risk of total and permanent disability is a very important one and it behooves a man to consider whether he will add this protective feature and safeguard his insurance against possible lapse. True, the problem is somewhat minimized by the fact that only the man who is dependent on his current income to pay his insurance stands in the greatest danger from this risk. But this is equally true of all insurance and if only men took insurance whose families would be completely unprotected against death of the income-getter, there would be little insurance written. This clause has become popular then because the company and the agent demand it for business reasons and because the policyholder needs it for economic reasons. The business argument has been largely at the base of its sudden popularity, but if the clause is to persist there must lie behind this the more fundamental interest of the policyholder. A close study of the clauses betrays the fact that some companies have left the policyholder out of consideration and have issued their disability contracts wholly with the idea of meeting competition.

Objections to the Disability Clause

The popularity of the clause has been attained despite a constant flood of criticism from the companies which are not issuing it. These objections should be noted briefly before taking up the more important study of the clauses themselves. Five important objections have been raised against this clause, namely: (1) that it is not life insurance and therefore should not be included in the life policy;

(2) that there is a very remote probability of a person becoming permanently or totally disabled and that only a short time elapses between disablement and death, and therefore there is little need for the clause; (3) that agents are given an opportunity to misrepresent the clause to the policyholder, thus opening the way to much dissatisfaction on the part of the policyholders in later years; (4) that it is difficult to define permanent and total disability to the satisfaction of both company and insured, making adjustment difficult and troublesome; and (5) that there is no scientific basis for determining the risk involved.

1. Not Life Insurance

As regards the first objection, namely, that the clause is not life insurance, the attitude of many companies is to the effect that if this type of risk is insured against, it should be covered by an accident or health company; that it is not the business of a life company, and that a combination of such unlike risks should be prohibited or discouraged. This objection disregards the fact that the occurrence of the contingency in question, namely permanent and total disability, puts the insured in just that position, where the permanence of his insurance is imperiled unless he is able to call upon some source of aid outside of his income, such as a savings deposit. It is quite true that this risk is covered *in part* by the clauses in many policies providing for automatic extended term insurance or automatic premium loans, and it is equally true that the companies are becoming increasingly liberal in the use made of these half-way measures. But if there is a real risk, the policyholder wants complete protection against it and such is not afforded by automatic premium loans. The objection here considered fails furthermore to note that accident and health companies do not give the insured the protection desired for they issue only one-year term policies and of course when they see the near approach of disability due to age or disease (and these constitute the great majority of cases) they will refuse to renew the policy and the insured is left without the very protection he wanted. Protection to the insured against this hazard must comprise *permanent* insurance against the possibility of permanent disability without the privilege of cancellation on the part of the company, and it is difficult to see where this will be obtained if not from the life companies.

2. Risk is Small and Interval Brief between Disability and Death

In answer to the second objection, namely, that the probability of becoming totally disabled is very remote and in case of its happening the time between disability and death is so short that an insurance against the risk is not needed, it is only necessary to offer the table on page 9 dealing with the probability of becoming disabled within one's life expectancy. This table shows that at age 35 one person in ten is liable to suffer total incapacity within his life expectancy, and that as the age increases, the probability of becoming disabled increases rapidly. At age 45, the probability has increased to one in five, at age 50 to one in four, at age 55 to one in three, at age 60 to one in two, and at age 70 to three in four. These figures make it appear that the risk of total disability is not an unimportant one. Moreover, the statement that only a short time intervenes between disability and death is untrue in many instances. We need only refer to the instances where persons lose both legs or arms, or become insane, or totally blind, or totally paralyzed, to appreciate the fact that one may live for many years after the occurrence of disability. While these cases are not important in the aggregate and do not mean a substantial addition, therefore, to the cost of the risk, the protection offered in such cases is of great importance to the individual who does not desire to face this uncertainty.

3. Misrepresentations by Agents

The third objection, namely, that the clause gives agents an opportunity to misrepresent facts and therefore may cause much dissatisfaction with the company in later years, is to some extent justified. Such dissatisfaction, however, will be great only in proportion as a company attempts to interpret its clause strictly. Insurance companies have passed through the same experience in the past with reference to many of the policy provisions which are now an inseparable part of the contract, and their failure to meet great dissatisfaction now, as compared with former years, is due largely to carefully drawn clauses and to a liberal interpretation on the part of the companies. If this liberality has become the established custom of the companies with regard to other features of their contracts, why fear that they will encounter more difficulties in connection with the disability clause? A study of the disability

clauses issued by American insurance companies shows that some have been drawn apparently for advertising purposes only, and are of very limited value indeed, furnishing ample justification for the fear that agents desiring to convince prospective clients may advertise such clauses as real disability protection, and that the policyholders will later, in time of need, find a discrepancy between promise and fulfilment. But it is apparent that this objection is directed, not against disability insurance as such, but merely at particular disability clauses, and the more quickly such criticism succeeds in eliminating these clauses from the field of competition, the better for all parties concerned.

4. Difficulty of Defining Disability

The fourth objection is in some respects similar to the one just discussed. The difficulty of determining what constitutes total and permanent disability is largely a question of wording and interpretation. In the first place, the clause should be so worded as to include within the scope of its benefits every legitimate case of permanent and total disability. A few companies unfortunately have attempted to restrict the definition of total disability in their clauses in such a manner as is bound to result in much quibbling if they insist on strict construction, and dissatisfaction will doubtless arise when policyholders have their attention called to the narrow limits of these definitions. Most of the clauses, however, are liberally worded, and in view of the past attitude of most American life insurance companies as to the liberal construction of contracts, there is little reason to anticipate difficulty with the clause. In the settlement of claims, many of the opponents of the clause fear that fraud on the part of the insured will assume large proportions. In the opinion of the actuaries of two of the larger companies issuing the clause, as expressed in letters to the writer, the attitude of the companies and their desire to be fair will go far toward minimizing the difficulties which may arise in the construction of the contract. Here undoubtedly lies the crux of the situation. There is little reason to see why fraud on the part of the insured will be a large element in this type of insurance, when companies today issue contracts against the risk of fire, or accidents to persons, or against burglary, cases where the element of fraud is sure to be greater than it will be with the disability clause. A company issuing this

clause should charge a premium high enough to justify liberality in the construction of its contract, and the contract should then be so construed.

The first two objections discussed bear primarily upon the statistical problem of the magnitude of the risk and its effect upon a life policy. There is little difficulty in showing that the risk is so considerable within the period of a person's expectancy of life that it may easily endanger the permanence of a man's life insurance protection. The last two objections cannot be advanced against disability insurance as such, but only in opposition to particular forms of clauses, or particular companies which seem to grant a disability benefit but qualify it with so many restrictions as to cause it to lose all semblance of its original purpose.

5. The Lack of Disability Statistics

The fifth objection to the adoption of the clause is more fundamental than any of the foregoing, and has reference to the absence of any scientific basis for the determination of the risk involved. The consideration of this objection requires a study of all the data dealing with the measurement of the risk in question and the application of those data to the clauses included in the present investigation. To this subject the next chapter is devoted.

CHAPTER III

Measurement of the Risk of Disability

Disability benefits have been granted by American life insurance companies only since 1896, and as noted before, 78 per cent of the clauses have been issued only since 1905. In this short time the companies have developed no experience of their own, and must look elsewhere for data to ascertain the risk involved. Permanent and total disability benefits as such have long been granted in Germany and Austria, and it was to this experience that American actuaries turned for data to measure the risk. The limits of this paper will permit no more than a cursory examination of the most important of these early data in their bearing upon the risk from the standpoint of American life insurance companies.

German Invalidity Tables

Permanent disability insurance began, as was stated, with the mutual aid societies organized by the miners of Austria and Germany and it was among these societies that the earliest statistical investigations were made. Among the tables published may be mentioned a table by Zeuner, showing the disability occurring among Saxon miners from 1860 to 1868 inclusive; the table by Caron including the experience of Prussian miners from 1870 to 1879; a table by Morgenbesser of the same data for the years 1868 to 1878; a table by Kaan dealing with Austrian miners from 1882 to 1890; and one by Küttner of Prussian coal miners from 1869 to 1883. Disability data for engineers and metal workers were published in a table by Zillmer in 1884. The investigation of experience among German railway employees was begun by Dr. Wiegand, who in 1868 completed the first inquiry into the rate of invalidity conducted on scientific principles. After the death of Dr. Wiegand these researches were continued until 1883 by Behm, after which they were carried still further by Zimmermann. Bentzien also published a table based on the years 1868 to 1889 dealing with invalidity among railway employees. A table for workmen in various trades was compiled by Behm in 1887, and this table is of special importance

TABLE 1

INVALIDITY PROBABILITY

Age	Railway employees								Miners					Engineers and Metal Workers	Workmen in Various Trades
	1868–1873	1868–1884	1868–1873	1868–1884	1868–1889	1877–1889	——	1868–1884	Prussian coal-mines		Prussian mines		Austrian Mines		
	Behm	Zimmermann	Behm	Zimmermann	Bentzien	Karup Gotha	Behm	Zimmermann	Küttner		Caron	Morgenbesser	Kaan	Zillmer	Behm
	For train servants		For the whole staff			For non-train staff			1874–1878	1869–1883	1870–1879	1868–1878	1882–1890	1884	1887
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20	.00052	.00031	.00022	.00021	.....	.....	.00038	.00021	.00310	.00220	.00295	.....	.00037	.00100	.00019
25	.00117	.00118	.00053	.00072	.00072	.00065	.00044	.00054	.00420	.00320	.00373	.00259	.00092	.00132	.00038
30	.00218	.00281	.00125	.00153	.....	.....	.00084	.00096	.00530	.00600	.00472	.00421	.00215	.00183	.00076
35	.00342	.00447	.00212	.00284	.00287	.00237	.00172	.00220	.00890	.00900	.00754	.00787	.00362	.00267	.00152
40	.00671	.00740	.00382	.00474	.....	.....	.00326	.00382	.01860	.01650	.01278	.01383	.00652	.00410	.00305
45	.01005	.01129	.00662	.00811	.00910	.00831	.00662	.00698	.03580	.02460	.02332	.02219	.01130	.00663	.00609
50	.01897	.02159	.01217	.01557	.....	.....	.01272	.01375	.06960	.06650	.04335	.05104	.02076	.01129	.01218
55	.03568	.04163	.02317	.02935	.03190	.03050	.02558	.02687	.11060	.11200	.08056	.09566	.03953	.02023	.02437
60	.05618	.07623	.03928	.05728	.....	.....	.04651	.05427	.22800	.19710	.10331	.16729	.06709	.03815	.04873
65	.09765	.12207	.06763	.10002	.11740	.12350	.07426	.09752	.39500	.28660	.13249	.25823	.11564	.07571	.09747
70	.15789	.18165	.10153	.16023	.....	.....	.10633	.15781	.58280	.43230	.25989	.38294	.17330	.15814	.19493
75	.72022	.28962	.13306	.20704	.23010	.25470	.13782	.20617	1.00000	.58430	.50979	.61885	.22883	.39580	.38986
80	.....	.....	.40255	.23134	.....	.....	.25822	.23134	.....	.91470	1.00000	1.00000	.70291	.....	.77972

From T. E. Young: "The German Law of Insurance against Invalidity and Old Age."
Journal of the Institute of Actuaries, 29: 306 (1891).
Except columns 5 and 6, from C. W. Jackson: "Permanent Disability Benefits."
Transactions of the Actuarial Society of America, 10: 490.

because it was used as a basis for the German invalidity and old age insurance law. The following data are of interest in showing the actual experience as compared with the expected according to Behm's table.[4]

Active workers one year under observation	49,981
Expected invalids (according to Behm)	218.589
Actual invalids	206

An investigation of invalidity at the time of the occupation census in 1882 showed a rate of invalidity much lower than Behm's table except at the earlier ages, hence his table was considered safe.

The yearly rates of probability of invalidity according to these several tables are here presented for each fifth year in a table compiled from the earliest account of this experience published in English.[5] (Table 1.) The table by Bentzien for railway employees for the years from 1868 to 1889 and the table by Karup, used by the Gotha Life Insurance Company, a German company, have been added from another source.[6]

It is doubtful if any of these tables are of practical value in measuring the risk which confronts American companies. There is a question as to just what the term "invalidity" means, for the German tables are tables of *invalidity;* and invalidity may or may not have the same meaning as permanent and total disability in America. Moreover, the information as to the sources of the data and the methods of compilation is scant. The principal value of the tables consists in the fact that they indicate the general nature of the risk involved. As an actual measure of disability from the standpoint of American life insurance companies, it is probable that the German rates of disability are excessive. This view is generally accepted by American actuaries.

The first attempt to compute the cost of insurance against total disability from these rates of invalidity for the use of American companies was made by Mr. C. W. Jackson in an article on "Permanent Disability Benefits" published in the *Transactions of the Actuarial Society of America* for May, 1908 (10:490). Taking the rates of

[4] *Journal Institute of Actuaries,* 29:307.

[5] T. E. Young: "The German Law of Insurance Against Invalidity and Old Age." *Journal Institute of Actuaries,* 29:306 (1891).

[6] C. W. Jackson: "Permanent Disability Benefits." *Transactions Actuarial Society of America,* 10:490.

invalidity among railway employees as calculated by Zimmermann and by Karup (Columns 4 and 6, table one; and columns 1 and 2, table two), Mr. Jackson combined each of these with the American Experience table rate of mortality and from them calculated the extra premium which must be charged by American life insurance companies for the promise that, on the occurrence of total and permanent disability, the premiums thereafter coming due on the policy will be paid by the company.

English Experience

Mr. Jackson, however, finds the above tables defective "in that the same rate of mortality is assumed for both invalid and active members, which is far from the case." He felt too, that the data from which the invalidity rates were obtained did not correspond to American conditions. For these reasons he looked elsewhere for statistics and found data in the sickness and mortality experience of the British Friendly Societies included in the British Government reports (Sutton's Tables) for the years 1861 to 1870. The reports for these years covered over 770,000 years of exposure and 24,445 deaths. Inasmuch as the experience of the Friendly Societies makes no distinction between permanent and temporary disability there was no direct method of determining the number of cases of permanent disability and Mr. Jackson followed the plan of considering all cases of over two years' duration as permanent. Mr. F. B. Mead in criticizing this approximation,[7] explains that this method has been commonly used in arriving at rates of permanent disability among the Friendly Societies, and that, while some cases may be only temporary or partial, to balance these there are some who may have died before the end of the two years, and these latter cases would be considered totally and permanently disabled by American companies. From this experience, Mr. Jackson calculates (1) a table of mortality among Friendly Society risks, (2) rates of disability and (3) rates of mortality among disabled lives. The latter is of special importance in meeting the objection which Mr. Jackson had raised to his own tables, based on Karup's and Zimmermann's rates of invalidity. This paper by Mr. Jackson had an importance far beyond the bearing which his rates might have on the disability risks which American companies would

[7] *Transactions Actuarial Society of America*, 11: 308.

incur, for it started in the Actuarial Society of America, the open forum of this country for the discussion of actuarial questions, a discussion of the disability clause which has brought permanent and substantial results.

American Experience

Since the applicability of both the German and the English rates to American conditions is doubtful, an attempt was next made to find American experience. American fraternal societies have long been accustomed to grant permanent disability benefits and the stock accident and health companies also do a large business of this kind. Nothing has been published thus far from the experience of these accident and health companies and it is doubtful if their experience would be of any value in measuring the risk for life companies. For these companies issue contracts of only one year duration and it is apparent that they will refuse to renew a policy on the life of a person, who, because of old age or disease, will probably soon become a claim. Data from such experience, therefore, would represent a highly selected class of risks and would not adequately measure the hazard confronting a company which insures for life. Several important studies have been made from the experience of the fraternal benefit orders and they furnish the best information at present available for the use of American life companies. The objection is urged against these studies that the experience of fraternal societies does not approximate the experience of life companies sufficiently to be of real value, and that therefore the companies cannot safely base conclusions thereon. But it is doubtful whether the representatives of the regular life companies in making this objection have not in mind, as a standard, the American Experience table and demand that, before accepting any disability table, they must have one which is as perfect as this one. It should be recalled that life insurance was written long before the adoption of the American Experience table, on the basis of data fully as tentative as the disability tables now to be discussed. Mr. Arthur Hunter,[8] in discussing the acceptance by the state of New York of his own tables as a basis for the valuation of these disability policies, states that the approval of any legal basis of valuation should be temporary only and that fraternal experience can be used until

[8] *Transactions Actuarial Society of America*, 12: 338.

data are obtainable from the life companies. The experience of the two fraternal societies which has been most largely used in this connection, namely, the Independent Order of the Foresters and the Knights of the Maccabees of the World is, in the opinion of the actuaries who have studied them in connection with the disability benefit, not greatly unlike that of the life companies. Mr. Sidney H. Pipe says, apropos of the care taken by the Foresters before granting the disability benefit,[9] "The claimant on making application and being medically examined is immediately relieved from payment of premiums and is placed on a probationary list for six months. At the end of that period he is again examined and if the medical evidence is to the effect that the applicant is permanently disabled, the benefit is paid; if not, the probationary period is extended, or the applicant has to resume payment of premiums. The effect of this method is to eliminate, as far as possible, cases of temporary disability. In this experience such cases were rare and were not treated as cases of disability." Mr. Franklin B. Mead says of the Maccabees,[10] "The opinion is widely current that the composition of fraternal societies is at wide variance with that of the life companies, but I am not so sure that that is the case, particularly insofar as a society like the Maccabees of the World is concerned, where each risk is carefully investigated and inspected before being subjected to a thorough examination which is passed upon by a competent medical board. Hazardous occupations are carefully eliminated and the society does not operate in unhealthful localities such as Arkansas, Louisiana, Mississippi, and similar districts without special action by the Board of Trustees. . . . Its total and permanent disability claims are rigidly passed upon on their merits after a probationary period of six months."

Pipe's Rates

Mr. Abb Landis has also made a study of the rates of disability found among the Maccabees and the Royal League. The Maccabees' experience[11] alone covered a period of 18 years ending

[9] *Transactions Actuarial Society of America*, 11:172.

[10] *Supra*, 11:309.

[11] Mead: *Measure of Risk and Liability under the Total and Permanent Disability Benefits in Life Insurance Policies.* Address delivered at the annual meeting of the American Life Convention, Cincinnati, Ohio, Oct. 8, 1909, page 5.

in 1902. It included 361,690 lives; 1,367,760 years of exposure; 8,460 deaths and 871 cases of disability. The data for the Royal League are not given in detail in the source quoted. Mr. Landis' tables, however, have not been used directly in computing disability premiums for American life companies. The first attempt to do this from fraternal experience was made by Mr. Sidney H. Pipe, his results appearing in the *Transactions of the Actuarial Society* for October, 1909 (11:172) shortly after the publication of Mr. Jackson's article. Mr. Pipe's study was based on data of the Independent Order of Foresters from the records of the society in the province of Ontario, Canada. He has computed the cost of the privilege of allowing cessation of premiums upon disability from a mortality and disability table arranged by combining the rate of disability and of death among disabled persons, according to the Foresters' experience, with the American Experience table of mortality. In this he follows the same method that Mr. Jackson applied to the data of the British Friendly Societies. The two rates of disability and of death among disabled lives can be compared by referring to tables two and three on pages 22 and 24 respectively. An attempt has been made in charts one and two, pages 26 and 27 to represent these same results graphically. One of the noteworthy results of Mr. Pipe's study is a table in which he analyzes the 1,229 deaths which the data includes to determine the effect of the cause of disability upon the subsequent rate of mortality. His table shows the average interval of time between disability and death, for all causes, to be one year, four months and twenty-eight days.[12] It shows that the rate of mortality among disabled persons is affected much less by age than by the cause or the fact of disability. Chart two will corroborate this statement.

Mead's Rates

The next study of fraternal experience with the disability benefit was made by Mr. Franklin B. Mead,[13] using the data of the Knights of the Maccabees of the World. He used the same data as Mr. Landis, previously referred to, but his investigation extended further and included all the experience of the society from the date of its organization until October 1, 1909, a total of 2,927

[12] *Transactions Actuarial Society of America*, 11:178.
[13] *Supra*, 11:304.

TABLE 2

INVALIDITY PROBABILITY

Age	Karup	Zimmermann	British Friendly Societies	Foresters	Maccabees	Foresters and Maccabees
		Ry.employees non-train staff	(males)			
	[Jackson]	[Jackson]	[Jackson]	[Pipe]	[Mead]	[Hunter]
	1	2	3	4	5	6
15						.000509
16						.000510
17						.000511
18				.00021		.000512
19				.00021		.000513
20	.00039	.00021	.00210	.00021	.00012	.000515
21	.00043	.00026	.00212	.00022	.00013	.000517
22	.00047	.00033	.00215	.00024	.00015	.000519
23	.00053	.00040	.00218	.00027	.00018	.000521
24	.00059	.00047	.00221	.00032	.00021	.000524
25	.00065	.00054	.00225	.00038	.00025	.000528
26	.00071	.00062	.00233	.00044	.00029	.000533
27	.00078	.00071	.00245	.00052	.00032	.000539
28	.00086	.00080	.00261	.00058	.00034	.000546
29	.00095	.00085	.00281	.00063	.00035	.000553
30	.00107	.00096	.00305	.00066	.00037	.000561
31	.00123	.00113	.00331	.00068	.00038	.000571
32	.00143	.00131	.00359	.00070	.00039	.000584
33	.00170	.00156	.00388	.00072	.00041	.000600
34	.00201	.00187	.00418	.00074	.00044	.000619
35	.00238	.00220	.00450	.00076	.00048	.000642
36	.00280	.00248	.00483	.00078	.00052	.000670
37	.00325	.00282	.00517	.00081	.00056	.000703
38	.00373	.00310	.00552	.00084	.00061	.000741
39	.00423	.00340	.00589	.00087	.00065	.000784
40	.00447	.00382	.00630	.00090	.00069	.000832
41	.00535	.00437	.00676	.00093	.00073	.000885
42	.00597	.00488	.00728	.00096	.00077	.000943
43	.00667	.00554	.00787	.00100	.00082	.001006
44	.00745	.00626	.00853	.00104	.00086	.001075
45	.00835	.00698	.00925	.00110	.00090	.001151
46	.00940	.00771	.01007	.00118	.00094	.001236
47	.01063	.00887	.01104	.00130	.00099	.001331
48	.01208	.01026	.01221	.00146	.00108	.001438
49	.01377	.01178	.01360	.00163	.00113	.001559
50	.01574	.01375	.01520	.00182	.00124	.001696
51	.01799	.01609	.01705	.00202	.00139	.001851
52	.02055	.01838	.01915	.00223	.00157	.002027
53	.02346	.02075	.02155	.00245	.00179	.002230
54	.02681	.02373	.02435	.00273	.00210	.002468
55	.03074	.02687	.02760	.00306	.00255	.002752
56	.03540	.03059	.03167	.00345	.00321	.003095

INVALIDITY PROBABILITY—*Continued*

Age	Karup	Zimmermann	British Friendly Societies	Foresters	Maccabees	Foresters and Maccabees
		Ry.employees non-train staff	(males)			
	[Jackson]	[Jackson]	[Jackson]	[Pipe]	[Mead]	[Hunter]
	1	2	3	4	5	6
57	.04098	.03507	.03640	.00388	.00407	.003512
58	.04766	.04061	.04199	.00449	.00504	.004021
59	.05557	.04695	.04848	.00530	.00646	.004643
60	.06474	.05445	.05592	.00625	.00830	.005402
61	.07513	.06174	.06431	.00730	.01025	.006326
62	.08656	.07039	.07371	.00840	.01270	.007447
63	.09887	.07914	.08503	.00945	.01612	.008802
64	.11190	.08814	.10147	.01065	.02107	.010433
65	.12550	.09752	.12000	.01148	.02802	.012388
66	.13970	.10851	.14019	.01343	.03765	
67	.15460	.12009	.16286	.01801	.05043	
68	.16980	.13166	.18760	.02673	.06676	
69	.18510	.14479	.21395	.04107	.08394	
70	.20000	.15781	.24150	.06255	.11133	
71	.21410	.17085	.27150	.09266	.13936	
72	.22710	.18374	.30070	.13291	.16973	
73	.23920	.19246	.32895	.18480	.20189	
74	.25070	.19975	.35610	.24983	.23493	
75	.26140	.20617	.38200	.32950	.26920	
76	.27090	.21197	.40760	.42531	.31199	
77	.27850	.21730	.43104	.53876	.37192	
78	.28420	.22226	.45404	.67136	.47653	
79	.28940	.22692	.47600	.82461	.61873	
80	.29720	.23134	.49600	1.00000	.92776	
81	.31250	.23537	.51582			
82	.34100	.23922	.53175			
83	.38810	.24400	.54048			
84	.45850	.25046	.54175			
85	.55310	.25914	.53730			
86	.66610	.27164	.52536			
87	.78380	.29125	.51230			
88	.88790	.32641	.49784			
89	.96350	.40773	.48194			
90	1.00000	.80000	.46500			
91			.44400			
92			.42300			
93			.40200			
94			.38100			
95			.36000			

TABLE 3

MORTALITY PROBABILITY AMONG DISABLED LIVES

Age	Pensioned railway employees [Zimmermann]	Austrian miners [Kaan]	Upper Silesian miners [Morgenbesser]	British Friendly Societies (males) [aggregate] [Jackson]	Foresters [aggregate] [Pipe]	Maccabees [aggregate] [Mead]	Foresters and Maccabees [special aggregate] [Hunter]	American Experience table rate [For comparison]
15							.267	.007634
16							.254	.007661
17							.241	.007688
18							.229	.007727
19							.217	.007765
20				.2695	.538	.4000	.205	.007805
21				.2375	.450	.3471	.193	.007855
22				.2059	.406	.3036	.182	.007906
23				.1905	.373	.2677	.171	.007958
24				.1770	.346	.2386	.161	.008011
25	.08310	.18807	.12655	.1670	.322	.2155	.151	.008065
26				.1595	.308	.1976	.141	.008130
27				.1530	.295	.1840	.132	.008197
28				.1480	.283	.1738	.123	.008264
29				.1425	.274	.1661	.114	.008345
30	.06560	.10339	.10959	.1370	.265	.1601	.106	.008427
31				.1320	.257	.1552	.100	.008510
32				.1265	.249	.1510	.095	.008607
33				.1210	.243	.1464	.092	.008718
34				.1145	.237	.1433	.090	.008831
35	.06390	.06559	.09490	.1090	.230	.1400	.089	.008946
36				.1040	.225	.1382	.088	.009089
37				.1005	.222	.1361	.088	.009234
38				.0970	.218	.1343	.087	.009408
39				.0945	.215	.1328	.086	.009586
40	.06220	.08663	.08328	.0925	.212	.1315	.085	.009794
41				.0910	.210	.1304	.085	.010008
42				.0890	.208	.1295	.085	.010252
43				.0875	.206	.1288	.086	.010517
44				.0865	.205	.1282	.086	.010829
45	.05300	.06624	.07244	.0860	.203	.1277	.087	.011163
46				.0850	.202	.1273	.088	.011562
47				.0845	.202	.1270	.088	.012000
48				.0845	.201	.1268	.089	.012509
49				.0844	.200	.1267	.090	.013106
50	.05100	.06115	.06958	.0843	.199	.1267	.091	.013781
51				.0841	.199	.1267	.092	.014541
52				.0839	.198	.1267	.094	.015389
53				.0838	.196	.1268	.096	.016333
54				.0837	.195	.1268	.099	.017396
55	.04850	.05693	.05911	.0836	.194	.1268	.101	.018571
56				.0835	.192	.1269	.103	.019885
57				.0835	.190	.1269	.105	.021335
58				.0835	.187	.1270	.107	.022936

MORTALITY PROBABILITY AMONG DISABLED LIVES—*Continued*

Age	Pensioned railway employees [Zimmermann]	Austrian miners [Kaan]	Upper Silesian miners [Morgenbesser]	British Friendly Societies (males) [aggregate] [Jackson]	Foresters [aggregate] [Pipe]	Maccabees [aggregate] [Mead]	Foresters and Maccabees [special aggregate] [Hunter]	American Experience table rate [For comparison]
59				.0835	.184	.1270	.109	.024720
60	.05120	.07052	.05523	.0836	.182	.1270	.111	.026693
61				.0837	.180	.1270	.113	.028880
62				.0839	.179	.1271	.114	.031292
63				.0842	.178	.1271	.114	.033943
64				.0845	.177	.1272	.115	.036873
65	.06290	.08340	.07324	.0852	.176	.1272	.115	.040129
66				.0861	.174	.1273	.115	.043707
67				.0880	.172	.1273	.115	.047647
68				.0905	.169	.1274	.115	.052002
69				.0935	.165	.1275	.115	.056762
70	.07800	.09773	.09637	.0970	.160	.1276	.115	.061993
71				.1010	.160	.1278	.116	.067665
72				.1050	.162	.1281	.116	.073733
73				.1095	.165	.1285	.116	.080178
74				.1145	.168	.1290	.117	.087028
75	.10680	.14157	.12290	.1205	.172	.1297	.118	.094371
76				.1265	.176	.1307	.119	.102311
77				.1330	.181	.1322	.121	.111064
78				.1400	.186	.1346	.126	.120827
79				.1480	.192	.1385	.133	.131734
80	.16260	.19328		.1570	.198	.1445		.144466
81				.1670	.205			.158605
82				.1780	.212			.174297
83				.1910	.220			.191561
84				.2070	.228			.211359
85				.2240	.236			.235552
86				.2420	.266			.265681
87				.2600	.303			.303020
88				.2770	.347			.346692
89				.2925	.396			.395863
90				.3055	.455			.454545
91					.532			.532466
92					.634			.634259
93					.734			.734177
94					.857			.857143
95					1.000 = Am. Exp. mortality after age 84			1.000000

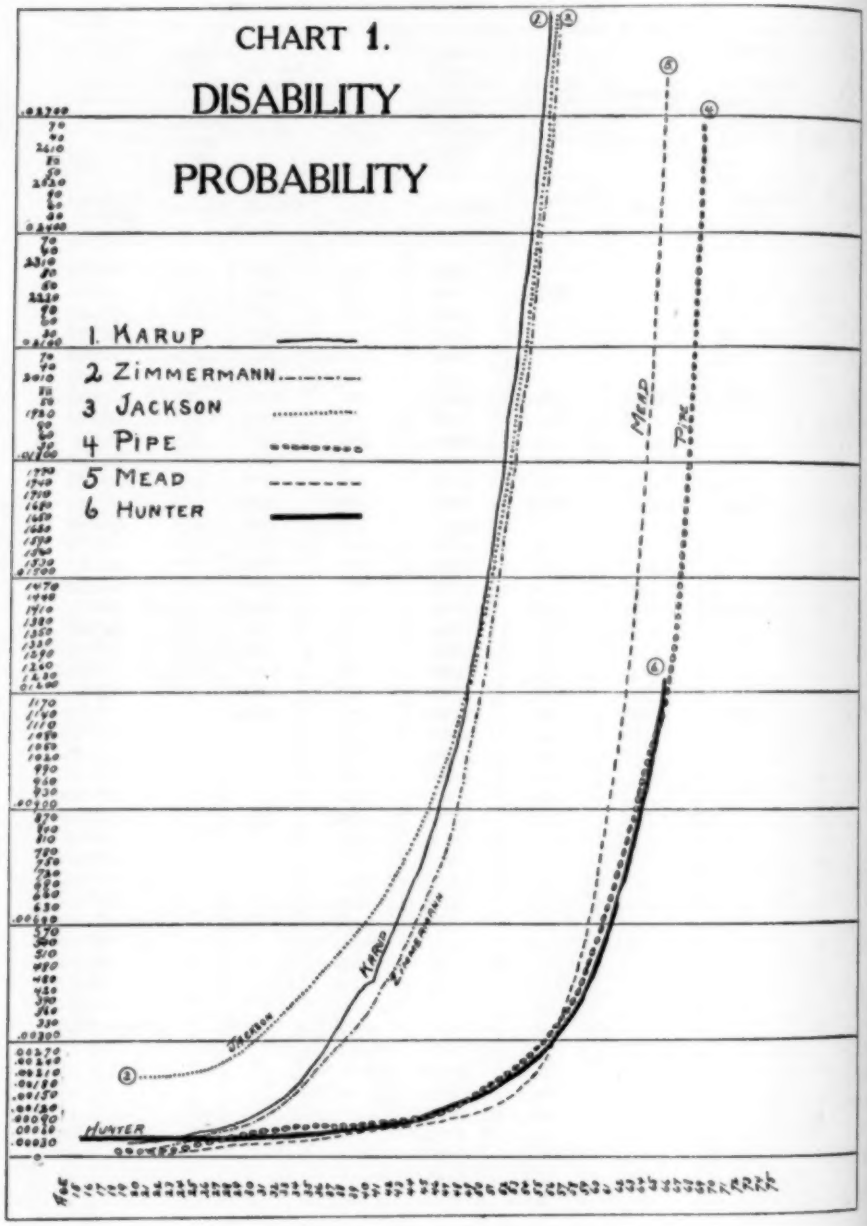
CHART 1.
DISABILITY
PROBABILITY
1. KARUP
2 ZIMMERMANN
3 JACKSON
4 PIPE
5 MEAD
6 HUNTER
MEAD
PIPE
KARUP
ZIMMERMANN
JACKSON
HUNTER

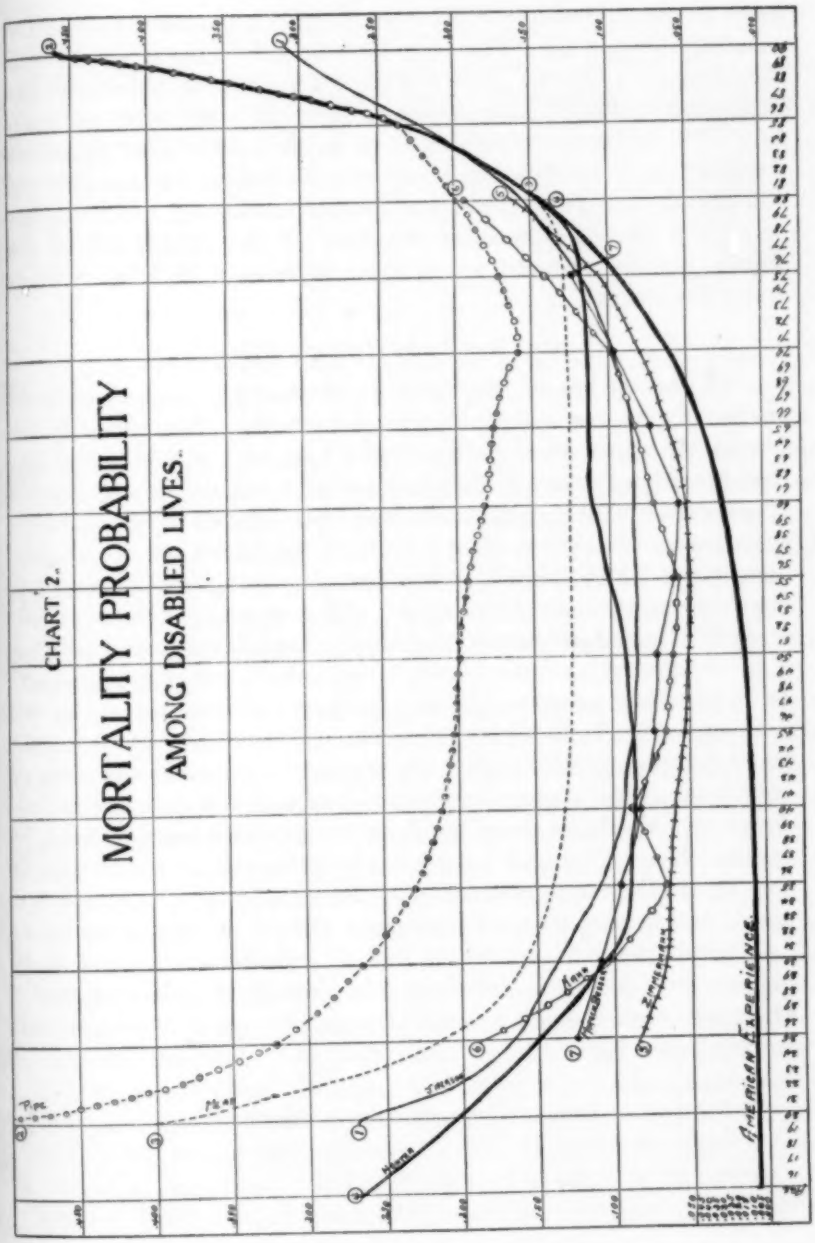
CHART 2.
MORTALITY PROBABILITY
AMONG DISABLED LIVES.
AMERICAN EXPERIENCE.

cases of permanent and total disability. In a later article in the same publication on "The Rate of Mortality among Totally and Permanently Disabled Lives Analyzed according to Duration since Time of Disability," [14] Mr. Mead made an investigation of the duration of time between disability and death and included data from the Knights of the Modern Maccabees embracing 245 invalids and 162 deaths, and from the Royal League embracing 1,972 invalids and 1,126 deaths, as well as the data of the Maccabees of the World, already referred to; a total experience of 5,144 invalids and 2,361 deaths.

McAdam's and Hunter's Rates

All the studies of disability made thus far have been based on the experience noted above. Mr. Arthur Hunter and Mr. Lucius McAdam* have both calculated tables. Mr. McAdam has used Mr. Mead's rates of disability and of mortality among disabled persons except for a slight correction from ages 69 to 80, and from them has computed premium rates both for the waiver of premium benefit and for the benefit of maturing the policy and paying it in installments, using for his purpose a different and simpler actuarial method than had previously been used. Into this actuarial problem it is not desired to enter here. Mr. Hunter's tables are generally credited among actuaries as being the best suited for measuring the risk involved. In fact they have already been made the basis for the valuation of policies with the disability clause in the state of New York. Mr. Hunter used for his purpose the data of the Foresters and the Maccabees which had previously been utilized by Messrs. Mead, Pipe and Landis. The difference in his treatment consists in the introduction of two "factors of safety." In the first place, he explains that net premiums should be calculated on an "ultimate" table of disability, that is, one from which the early policy years have been excluded. He presents the following table[15] of experience of the first five policy years in support of his position:

[14] *Vol. 12*, p. 75.

* Now deceased.

[15] *Transactions Actuarial Society of America*, 12: 47.

DISABILITY EXPERIENCE OF FIRST FIVE POLICY YEARS MEASURED BY THE ULTIMATE RATE

Policy years	Expected number becoming disabled	Actual number becoming disabled	Ratio of actual to expected disabled
1	483	46	10 per cent
2	386	201	52 per cent
3	330	231	70 per cent
4	288	222	77 per cent
5	254	265	104 per cent

This table shows that the rate of disability among newly selected risks is much smaller than after a policyholder has been a member of the society for several years, the ratio of the actual to the expected rate of disability being only 10 per cent the first year after the policy has been written and not equalling the expected rate until after the fourth year of the life of the policy has been passed. The table therefore clearly demonstrates that from the standpoint of safety it is advisable to eliminate the experience of these first four policy years. The tables by Messrs. Mead and Pipe were "aggregate" tables, that is, they included in their data the experience of these early years.

The second "factor of safety" introduced by Mr. Hunter refers to the question whether, in dealing with the death rate among disabled persons, a "select," an "ultimate" or an "aggregate" table of morality should be used. A "select" table would show the rate of mortality in its relation to the time elapsed since disablement has taken place. For instance, it would distinguish the death rate at age 40, among persons disabled at age 35, from the death rate at age 40 among persons disabled at age 39. In other words, it would show the effect upon the rate of mortality produced by the time which has elapsed since disability occurred, and it is composed of "select" rates of mortality for the several years immediately following disability. An "ultimate" death rate, like the "ultimate" disability rate first mentioned, eliminates these first years; in this case, the years immediately following the *occurrence of disability* and not, as in the case of "ultimate" disability, the years following the *writing of the policy*. The "aggregate" death rate represents the rate of death among disabled persons at each age regardless of

whether the experience includes mostly persons just disabled or those disabled for many years; and in computing it the complete data at hand for deaths at each age is included and no notice is taken of the duration of disability prior to death. Messrs. Mead and Pipe had used such an aggregate death rate. This is theoretically incorrect, because the death rate which will be experienced under the operation of the disability clause and which will determine how many premiums are to be paid by the insurance company is the death rate which results immediately after the occurrence of disability. An aggregate death rate, which, in the data for a particular year, does not note whether the data are of the first year after disability or of some other year; or an ultimate rate, which eliminates the first years after disability, are clearly incorrect. Mr. Hunter analyzed the data at his disposal to determine the "select" rate of death among disabled lives. The following table showing his results for each fifth year demonstrates that the rate of mortality is very high immediately after disability and decreases rapidly:[18]

RATES OF MORTALITY AMONG EACH 1,000 DISABLED LIVES

Policy years after disability	Ages				
	25	35	45	55	65
1	400	327	290	248	190
2	190	148	140	147	146
3	134	99	106	119	127
4	91	64	74	94	115
5	73	47	51	74	106
6	64	42	45	65	98
7	56	37	39	59	93
8	47	32	35	54	89
9	40	28	31	52	85
10	34	24	27	49	81

Mr. Hunter concluded, however, after having thus analyzed his data, that premiums based upon "select" death rates involved so much calculation as to be impractical and that an "aggregate" rate could be obtained which would be just as safe, by eliminating from the aggregate experience the deaths of the first policy year following

[18] *Op. cit.*, p. 51.

disability. This he called his "special aggregate" mortality rate among disabled lives. He computed specimen premiums to compare these several rates, as follows:[17]

EXTRA NET ANNUAL PREMIUM, CEASING AT AGE 60, TO PROVIDE FOR CESSATION OF PREMIUM UNDER ORDINARY LIFE POLICIES ON THE INSURED'S BECOMING DISABLED BEFORE AGE 60

Age at entry	With aggregate mortality among disabled lives	With select mortality among disabled lives	With special aggregate mortality among disabled lives
20	$0.11	$0.12	$0.13
40	.25	.29	.32
55	.93	1.03	1.12

These results bear out his conclusions that if "select" rates are safe, then "special aggregate" rates are equally so, for the latter rates show slightly higher premiums than the former. This is the same problem that Mr. Mead dealt with in his paper on "The Rate of Mortality amongst Totally and Permanently Disabled Lives Analyzed according to Duration of Time since Disability."[18] A table is here presented arranged from Mr. Mead's data (*op. cit.* p. 79), whereby his results can be compared with those of Mr. Hunter as shown on page 30:

RATE OF MORTALITY AMONG EACH 1,000 DISABLED LIVES

Policy years after disability	Ages				
	25	35	45	55	65
1	399	367	306	262	195
2	190	168	148	142	129
3	108	89	104	116	116
4	54	58	78	89	104
5	43	45	65	80	100
6	34	35	58	75	99
7	27	29	54	73	99
8	20	22	51	75	102

[17] *Op. cit.*, p. 57.

[18] *Transactions of the Actuarial Society of America*, 12:77.

TABLE 4

ORDINARY LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY

Age	(1) Jackson	(2) Jackson	(3) Jackson	(4) Pipe	(5) Mead	(6) Mead	(7) Mead	(8) McAdam
	3½ per cent Karup invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Zimmermann invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent B. F. S. males invalidity mortality among disabled [aggregate]	3½ per cent Foresters invalidity mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Maccabees invalidity mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. fraternal mortality among disabled [select]	3½ per cent Mead's tables invalidity mortality
	Disability at any time	Disability at any time	Disability or age 80	Disability or age 80	Disability before age 80	Disability before age 80	Disability before age 80	Disability before age 81
20	1.30	1.15	.28	.24	.43	.31	.31	.32
25	1.92	1.70	.39	.34	.61	.45	.45	.46
30	2.89	2.55	.57	.48	.87	.65	.66	.67
35	4.52	3.98	.84	.71	1.29	.99	.99	1.02
40	7.41	6.47	1.30	1.10	1.99	1.55	1.55	1.60
45	12.79	11.04	2.08	1.79	3.21	2.54	2.53	2.63
50	23.70	20.19	3.46	3.10	5.55	4.44	4.41	4.63
55	48.56	40.31	5.99	5.69	10.46	8.41	8.32	8.79
60	115.29	90.67	10.78	11.38	21.66	16.85	17.29	18.38
65	341.58	240.15	19.89			41.27	40.66	
70			35.95			107.35	105.35	
75						262.27	248.92	

TABLE 5

ORDINARY LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

	Extra premiums payable during life if active						Extra premiums ceasing at 60		
	(1) Mead	(2) Mead	(3) Mead	(4) Pipe	(5) Hunter	(6) McAdam	(7) Mead	(8) Mead	(9) Hunter
Age	3½ per cent Maccabees invalidity Am. exp. mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Maccabees mortality among disabled [aggregate]	3½ per cent Maccabees invalidity combined Am. fraternal mortality among disabled [select]	3½ per cent Foresters invalidity Foresters mortality among disabled [aggregate]	3½ per cent ultimate disability rate special aggregate mortality among disabled	3½ per cent Mead's tables (a) invalidity (b) mortality	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity combined Am. fraternal mortality among disabled [select]	3 per cent ultimate disability rate special aggregate mortality among disabled
20	.12	.05	.05	.05		.05	.05	.06	.10
25	.17	.06	.07	.07	.10	.07	.07	.08	.13
30	.22	.09	.10	.08		.10	.10	.11	.17
35	.28	.12	.13	.10		.15	.14	.16	.23
40	.37	.16	.18	.15	.22	.22	.21	.23	.32
45	.48	.22	.24	.20		.34	.32	.35	.46
50	.62	.30	.31	.27		.57	.54	.57	.70
55	.73	.37	.37	.30	.37	1.10	1.05	1.05	1.12

TABLE 6

TWENTY PAYMENT-LIFE PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

Age	Extra premiums payable throughout paying period, if active					Extra premiums ceasing at 60 in any event		
	(1) Pipe	(2) Mead	(3) Mead	(4) Mead	(5) McAdam	(6) Mead	(7) Mead	(8) Hunter
	3½ per cent. Foresters (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Am. Exp. mortality among disabled [aggregate]	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. Fraternal mortality among disabled [select]	3½ per cent Mead's tables (a) invalidity (b) mortality	3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	3½ per cent Maccabees invalidity Combined Am. Fraternal mortality among disabled [select]	3 per cent (a) ultimate disability rate (b) special aggregate mortality among disabled
20	.03	.05	.02	.02	.03	.02	.02	.06
25	.03	.07	.04	.04	.04	.04	.04	.08
30	.04	.11	.06	.07	.07	.07	.07	.11
35	.04	.16	.09	.11	.10	.11	.11	.16
40	.09	.26	.16	.18	.17	.18	.18	.25
45	.18	.43	.25	.28	.33	.31	.33	.45
50	.29	.64	.37	.37	.60	.57	.58	.72
55	.32	.78	.42	.42	1.17	1.10	1.09	1.17

TABLE 7

TWENTY YEAR ENDOWMENT PREMIUMS

FOR CESSATION OF PREMIUMS UPON DISABILITY OCCURRING BEFORE AGE 60

Age	(1) * Mead 3½ per cent Maccabees invalidity Am. Exp. mortality among disabled [aggregate]	(2) * Mead 3½ per cent Maccabees (a) invalidity (b) mortality among disabled [aggregate]	(3) * McAdam 3½ per cent Mead's tables (a) invalidity (b) mortality	(4) † Hunter 3 per cent (a) ultimate disability rate (b) special aggregate mortality among disabled
20	.08	.04	.04	.11
25	.13	.06	.07	.13
30	.17	.09	.10	.17
35	.23	.13	.14	.23
40	.35	.21	.22	.33
45	.54	.31	.40	.54
50	.73	.42	.68	.81
55	.83	.46	1.24	1.24

* Extra premiums payable throughout premium paying period, if active.

† Extra premiums ceasing at age 60 in any event.

TABLE 8

PAYMENT OF SUM INSURED UPON DISABILITY

Age	Fackler		Mead				McAdam						
	3½ per cent (a) ultimate disability (b) special aggregate mortality among disabled — Hunter's tables		3½ per cent Maccabees invalidity Am. Exp. mortality among disabled				3½ per cent Mead's (Maccabees') probabilities (a) invalidity (b) mortality among disabled						
	20 installments i.e. $736 if disabled		20 installments i.e. $736 if disabled				Sum insured i.e. $1000 if disabled						
	Extra premium ceasing at age 60		Extra premium continuing throughout prem. paying period										
	Disability before 60		Disability before 60				Disability before 81			Disability before 60			
	Ordinary life	20 payment life	Age	O. L.	20 P. L.	20 End.	O. L.	20 P. L.	20 End.	Age	O. L.	20 P. L.	20 End.
20	.06	—.04*	20	.55	.22	.07	1.10	1.20	.08	20	.18	.21	.08
35	.19	—.05*	25	.75	.26	.11	1.46	1.49	.13	25	.23	.25	.13
50	.80	.65	30	1.01	.30	.15	1.95	1.85	.18	30	.29	.32	.18
			35	1.43	.33	.20	2.69	2.30	.25	35	.39	.38	.25
			40	2.11	.41	.23	3.82	2.91	.40	40	.53	.48	.40
			45	3.20	.64	.26	5.65	3.85	.84	45	.73	.72	.70
			50	5.56	1.69	.36	8.91	5.84	2.45	50	1.10	1.12	1.15
							15.21	11.36	8.36	55	1.91	1.90	2.00
							28.75	25.66	23.62	60			
* Less than regular Am. Exp. 3½ per cent by this amount													

Mr. Mead made a comparison of the two methods of treating the rate of mortality among disabled lives as here discussed, that is, as a select or as an aggregate rate, by computing the extra premiums for cessation of premiums upon disability, if happening before age 60, the extra premiums to cease at 60 in any event. In the first column (*a*) the Maccabees aggregate rate of mortality among disabled lives was combined with the American Experience table of mortality and the Maccabees probability of invalidity; while in column (*b*) the rate of mortality among disabled lives used was that of the Combined American Fraternal Experience analyzed in "select" form.

Age	Ordinary life	
	(a)	(b)
20	$0.05	$0.06
25	.07	.08
30	.10	.11
35	.14	.16
40	.21	.23
45	.32	.35
50	.54	.57
55	1.05	1.05

These rates, however, cannot be compared with those of Mr. Hunter, since they are computed on a 3½ per cent interest basis, while Mr. Hunter used 3 per cent.

For the purpose of readily comparing the results which these several actuaries have reached, tables of the premiums which they have computed are presented herewith (tables 4 to 8 inclusive). An attempt has been made to aggregate the results in such a manner as to show the important differences in the tables. It will be noted, for example, that all computations, with the single exception of Mr. Hunter's, have been made on a 3½ per cent interest basis. The tables indicate the source of the rate of invalidity used in each case and of the rate of mortality among disabled persons; and the nature of the latter, whether it is an "aggregate" or a "select" rate. Messrs. Hunter and Mead alone have attempted to use a select rate of mortality among disabled lives.

Table No. 4 shows the extra premiums required upon ordinary life policies for the benefit of waiving premiums at any time after disability occurs. Some of the tables, it will be noticed, provide for the cessation of premiums upon "disability or age 80 " that is, the policy will become full paid at age 80 whether the insured is disabled or not. This makes the policy an endowment at age 80. Others provide for waiver of premiums upon "disability before age 80." The benefit in this case does not extend beyond age 80, but it is the opinion of Mr. McAdam[19] that these rates can fairly be compared with the rates where no age limitation is made, for there are few instances where at age 80 the insured cannot be shown to be disabled in the sense of being "incapacitated to follow any work for profit." The rates shown in this table clearly demonstrate that, in case no age limitation is placed upon the granting of the waiver of premium benefit, it cannot be allowed without a substantial increase in premiums, especially at the later ages. The extra sums required at age 50 for example, range, according to the different tables based on American or English experience, all the way from $3.10 to $5.55 per $1,000 insurance per year. In this fact undoubtedly lies the reason why so many companies have limited the benefit to age sixty.

Table No. 5 shows the extra sum to be added to the ordinary life premium in case the disability benefit is limited to ages prior to 60. Two methods have been followed by the actuaries in computing these premiums; one assuming that the extra premium for the disability benefit will continue throughout the premium-paying period if the insured survives and does not become disabled; the other assuming that the extra charges will cease when the age limit is reached (age 60 in table 5) whether disability has occurred or not. The specimen premiums are so grouped in this table that comparisons can be readily made between the rates computed by different actuaries. The two tables, 4 and 5, afford other valuable comparisons in connection with the problem as to what rate of death is to be expected among disabled lives. It will be remembered that Mr. Jackson in his Karup and Zimmermann tables assumed that the rate of mortality after disability would be the same as the American Experience table rate and computed his premiums accordingly, while in his Friendly Societies table he used the rate of mortality

[19] *Total Disability Benefits*, p. 57.

that was found to occur among friendly society risks. Mr. Mead likewise in an early table[20] computed premiums based on the assumption that the American Experience rate of mortality would be experienced among disabled lives; but aside from these exceptions all the tables have used rates of mortality after disability, based on actual experience among disabled lives.

The effect of introducing this specialized rate of mortality is well shown by comparing Mr. Mead's rates in column 5, table 4, with his rates in column 6 of the same table. With the American Experience rate of mortality among disabled lives the cost at age 60 is $21.66 per year; with the rate of mortality *among disabled lives* according to the Maccabees' experience the rate at the same age is $16.85. Undoubtedly a considerable reason for the prohibitive size of the Karup and Zimmermann rates computed by Mr. Jackson is this use of the same rate of mortality among disabled as among active lives. The same results are well shown by comparing Mr. Mead's rates in table 5 column 1 with column 2. The effect of the introduction of "select" rates of mortality among disabled lives is shown by a comparison of Mr. Mead's rates in columns 7 and 8, or columns 2 and 3, of table 5. The premiums are slightly higher where the "select" rates have been used, 57 cents, for example, at age 50 as compared with 54 cents with aggregate rates of mortality. The combined effect of "ultimate" rates of disability and "select" (or "special aggregate") rates of mortality among disabled lives, the two contributions of Mr. Hunter, are shown by comparing his rate in column 5, table 5, with the rates of Messrs. Pipe or Mead in columns 2, 3, or 4 of the same table. These same results will be obtained by making similar comparisons of rates on twenty-payment life policies (table 6) and twenty-year endowment policies (table 7). A further noteworthy feature about the two latter tables is the fact that the extra benefit when attached to such policies costs so little as to be almost negligible, and has led many companies to grant the waiver of premium benefit without any additional premium.

It is impossible to obtain premiums to compare in cases where the benefit upon disability takes the form of maturity of the policy and its payment in some form to the insured. But three actuaries

[20] Mead: *The Measure of Risk and Liability under the Total and Permanent Disability Benefits in Life Insurance Policies*, Tables, G, H, and I.

have thus far computed premiums for this form of benefit, and their results are presented briefly in table 8. Mr. Fackler's premiums are based on Hunter's rates of disability and mortality; Mr. Mead's rates on his own earlier tables; and Mr. McAdam's rates on Mead's tables in which he used the American Experience rates for mortality among disabled lives. Messrs. Mead and Fackler have the same benefit in mind, namely, the payment of the policy in twenty installments following disability. This benefit has a present value, at the time when installments begin, of $736 on a 3½ per cent interest basis. Mr. Fackler's rates show that this benefit is less costly than the waiver of premium benefit in every instance given except the ordinary life rate at age 50 where the rate is 80 cents extra for payment of the policy in twenty installments and 70 cents for the waiver of premium. In the case of the twenty-payment life policy, the policy with this benefit attached actually costs less than the regular American Experience 3½ per cent premium at ages 20 and 35. This is easily explainable. The policy matures for an equivalent of $736 and this is a smaller sum than would be the present value of $1,000 paid in a lump sum at death, were its present value worked out on the basis of the rate of mortality among disabled lives. At first glance it appears that Mr. Mead's tables lead to an entirely different conclusion, for they show that a considerable extra premium must be charged to cover this benefit. But if this table (the ordinary life column, for example) be compared with Mr. Mead's premiums for waiver of premium only on the ordinary life policy, (see table 4, column 5) it will be found that the result is the same, namely that the payment of the sum insured in twenty installments is cheaper for the company than mere cessation of premiums upon disability. Mr. McAdam's tables are calculated on the basis that the face value of the policy, $1,000, will be paid immediately in one payment and therefore cannot be compared with Mead's and Fackler's premiums. These comparisons are mainly valuable because they lead to the conclusion that there is not a radical difference in the rates that have been computed by actuaries on any experience that is reasonably homogeneous. Mr. Hunter has stated [21] that it is useless to attempt any further actuarial refinements until experience is available from the old line companies themselves.

The last objection brought against the disability clause was

[21] *Transactions of the Actuarial Society of America*, 12:50.

that there are not sufficiently accurate statistical data in existence on which to base rates. The foregoing studies by American actuaries, having in mind the application of the data to the business of old line life insurance companies, have overcome this objection and have furnished us with tables of rates which are generally agreed among actuaries to be safe.

PART II

THE DISABILITY CLAUSE AMONG AMERICAN LIFE INSURANCE COMPANIES

CHAPTER IV

Restrictions on the Use of the Disability Clause as Regards Policies or Risks

The foregoing statistical study of disability insurance has been introductory to the main theme of this book, viz., a detailed study of the clauses issued by American life insurance companies. One hundred and forty-four companies organized on the old line plan, were found by the writer to have inserted the disability clause in some or all of their policies since 1896. Of these 144, seven have reinsured or been absorbed by other companies; one company has ceased issuing the disability clause; and one has ceased writing life business, now confining its attention to casualty insurance. This leaves 135 companies now issuing the clause. Copies of the clauses of 114 of these companies have been obtained from the companies and 13 other clauses were found in the Spectator Company's "Handy Guide" for 1911. Only eight companies, therefore, out of the total of 135 are not included in the following discussion.

The study of these clauses will include an analysis of the following features:

1. Policies or risks on which the clause is not granted.
2. Definition of disability.
3. Age and time limits to the application of the clause.
4. Benefits granted.

Term Insurance

Since the disability clause is in a more or less experimental stage, most companies have seen fit to restrict its use to those policies or those risks on which they expect to have a normal mortality experience. The case in which the clause is most frequently refused is in term insurance and various reasons are advanced in explanation. The reason given by the actuary of one of the larger companies for making this exception is that the reserves held under a term policy

are very small. It is true the risk in this case is much greater than in the later years of an endowment policy, for instance, because of the existence of a large reserve on the endowment policy, but this is no reason why the premiums charged should not consider the actual risk involved. This company charges a flat rate of only 25 cents for the clause.

The objection of many companies to including the clause in term policies is in direct line with their desire to discourage term insurance. It is a well known fact that most old line companies have for years worked on the assumption that the field for term insurance should be strictly limited, and that there are few situations which justify its issue. If it be granted that term policies are to be restricted to a few isolated cases where temporary business protection is demanded, then some force must be given to such reasoning. But there is a broader field of use for term insurance as pure protection against untimely death during the productive period of a man's life. It is not necessary to the safety of an insurance company that investment features be added to every type of policy. The gradual realization of this fact is making term insurance more popular with the insuring public and if this development continues, as it in all probability will, and if the disability clause becomes a standard provision in policy contracts, then there must be a corresponding demand for its inclusion in term policies. The question therefore of combining the disability rider with the term policy becomes a very important one.

Another and a more serious objection, however, is advanced against placing the clause in a term policy. Some term policies today allow renewal at the expiration of the term, or conversion to some other kind of policy, these privileges being granted without a new medical examination. The presence of the disability clause in a contract of this nature may well place the company at a disadvantage. Thus, in the case of a renewable policy if disability should occur shortly before the expiration of the term the company must pay the premiums for the remainder of the term, and the insured would be almost certain to renew the policy and thus oblige the company to pay the higher premium due after renewal. This appears on its face to be a very serious objection. It must be recognized that the cost of the clause on this policy should include the cost of paying the higher premium which applies after renewal.

If this is done the company can oppose no valid reason for making an exception in the case of renewable term insurance. That the objection is not a serious one, however, and that the cost would not be prohibitive is shown by a study of the rate of mortality among disabled persons as already explained. On page 21 it was shown that the average length of life after disability is only a few years at the utmost; that the company can usually proceed on the theory that a disability claim will very shortly be a death claim; and that, therefore, the extra cost of the feature as attached to renewable term policies will not be great. With convertible term policies, the case is different. Such policies might, after disability has occurred, be converted into short term endowments, thus obliging the company to pay the larger premium which the latter cost. By this means a policyholder might convert a term policy costing ten dollars per year into a ten-year endowment costing one hundred dollars per year and by the terms of his agreement compel the company to pay one-hundred-dollar premiums after disability in place of ten-dollar premiums. This would be equivalent to obtaining a ten-year endowment policy without paying for it. This is manifestly unfair, and a company writing participating insurance cannot treat its other policyholders fairly and allow such practices. The solution, however, lies, not in refusing to grant the disability clause on term policies, but in refusing to grant the waiver of premium benefit after conversion of the policy. Only one company has been found to have availed itself of this protective feature. The clause issued by the Columbian National on term policies reads: "Such payments (*i.e.* premiums by company) to cease, however, should the insured . . . avail himself of the exchange or renewal privileges of said policy." Other companies may contemplate a refusal to pay benefits after conversion, but the reservation of such right does not appear in the clause.

Endowment Policies

One company refuses to grant the clause with endowments. This action is difficult to understand, for a glance at the extra premiums to be charged for the clause as computed by the actuaries already referred to will show that there is generally no material difference between its cost on endowments and on ordinary life or limited payment life policies. If any policy tends to cost more

than others it is probably the ordinary life. Some companies recognize this fact by refusing to include the clause on ordinary life policies in case of certain hazardous risks. But there seems to be no particular reason for the application of such a limitation to endowment policies.

Joint Life Policies

It is frequently the case that the disability clause is not included in joint-life policies, the companies claiming that there is difficulty in calculating the benefits under two-life policies. The question immediately arises, for instance, whether the benefit will be paid when both are disabled or when only one. It is easy to see that the probability that both of two persons will become disabled is very small and that the benefit in this case would have little value. The Home Life of New York meets this difficulty by agreeing to waive one-half the joint-life premium in case one person is disabled or the whole premium where disability occurs to both. This is a simple and satisfactory solution. The Prudential Insurance Company grants the clause on joint-life policies on two lives, but refuses it on policies covering three or more lives. No fault can be found with this restriction, for such a benefit would be so small as to be insignificant. To be sure the cost of the clause when included in joint-life policies can be made dependent on paying the benefits for disability the same as death benefits. Death benefits, for example, are paid under the ordinary joint-life policy upon the death of either of the insured. It is possible likewise to pay the disability benefit under this policy in case of the *disability* of *either of the insured*. It is a question, however, whether this is not insisting on too great actuarial refinements at a time when our experience with disability insurance is limited; and whether the scheme of the Home Life is not equally satisfactory.

Some of the companies writing industrial business refuse to grant the clause in connection with intermediate policies, *i.e.*, policies with a face value of $250 or $500. This is in line with their reasons for refusing it altogether on any strictly industrial business, for a poorer class of risks is found among industrial policyholders.

Women

Chief among the risks which are ordinarily excluded from the benefits of the disability clause are women. Disability s usually so

defined as to mean inability to carry on any occupation for profit, and since it is frequently the case that women have no occupation, many companies exclude them without exception. Other companies make exception only in case of married women and women who have no occupation.

Impaired Lives and Hazardous Occupations

Sub-standard lives insured under some lien plan, or under a policy different from the one applied for, cannot be granted disability protection under this clause without departing from a conservative basis, and a number of companies make this exception. To grant the clause in such a case would subject a company to a disability rate much above the normal, and it is well for the companies to follow the line of conservatism rather than assume so large a risk. Closely allied to this limitation are two other exceptions which are commonly made, viz.: (1) where the insured is engaged in some hazardous occupation, and (2) where a partial impairment of the life already exists. The reason for the first exception is obvious. As regards the second, if a person has already lost one hand, or foot, or has impaired sight, etc., it is apparent that the probability of becoming totally disabled is greater than in cases where no impairment exists. This defect furnishes a pretext on the part of a few companies for refusing entirely to grant disability protection. Such a sweeping denial of protection against those kinds of disability which are in no way affected by the fact of partial disability, as for example, impaired sight, is not necessary and is hardly fair to the insured. It should be sufficient merely to eliminate benefits in those cases affected by the partial impairment and allow the clause to cover all other causes. Some companies follow this procedure.

Few of the foregoing restrictions appear in the disability clauses themselves, but the companies reserve the right to withhold the feature or refuse to give the benefit at all. In some cases where the clause is a part of every policy it must be cancelled by endorsement; and many companies give their medical director full discretion to exclude it from any policy submitted to him. A number of companies, however, advertise that they make no restriction whatever as to the policy or the risk on which they will grant the disability clause.

CHAPTER V

The Definition of Disability

In discussing the objections to the disability clause it was found on page 13 that the companies feared difficulties would arise in deciding what constituted total and permanent disability within the meaning of the contract, and it was feared further that they would find it necessary to resist many unjust claims. This is forcibly stated by the president of one of the companies which does not issue the clause, in the following words:[22] "A company . . . with a total disability clause in its contracts has, or will have a large number of claims which it cannot properly approve and allow. This leads to litigation, and litigation leads to expense, and worst of all to dissatisfaction. . . . One claim disallowed will more than offset in any agency all the benefits that can be gotten out of the total disability clause *as a talking point.*" This quotation clearly points the way toward the difficulties to be encountered in defining disability, when the company's point of view is "a talking point."

With Reference to Occupation

If the viewpoint here held is correct, any definition of disability should be broad enough to include any and all cases of total and permanent incapacity to perform the work that a man is fitted by his training to do. An injury to the fingers of a concert violinist, for instance, may totally incapacitate him thereafter from carrying on the duties of his profession and he is in this sense totally disabled. The same injury is of little consequence to a commercial salesman. Loss of speech on the other hand would mean to the latter inability thereafter to follow his profession but might scarcely affect the violinist. In the same way it might be shown that there are many injuries, diseases, or defects that have vastly different effects on the earning capacity of men in different occupations. If protection is to be obtained against the financial consequences of disability these different results must be considered in defining the

[22] Frederick W. Jenkins in *The Security Agent*, March, 1913.

clause offering such protection. The usual form of definition requires that 'the insured shall furnish due proof that he has become wholly and permanently disabled by bodily injury or disease, so that he is and will be permanently, continuously and wholly prevented thereby from performing *any work* for compensation or profit. . . . " This definition has the common fault of all disability clauses and furnishes grounds for serious criticism if the clause is to be interpreted literally. The situation cannot be better stated than was done in a circular which one prominent company sent to its agency force in explanation of the clause which it issues: "The disability must be total, not merely such as would preclude the insured from following his ordinary occupation, but such as would *permanently, continuously* and *wholly* prevent his performing *any work whatsoever* for compensation or profit, or from following *any gainful occupation whatsoever.*"[23] A literal interpretation of this statement leads to the conclusion that if the violinist had his fingers permanently injured so that he must give up his occupation, still he is not permanently disabled if it is possible for him to perform manual labor Such clauses are not looking to the needs of the insured but are considering only the company and its desire for a "talking point." In spite of the fact that all of the clauses are stated in this objectionable way it is doubtful if all the companies intend to interpret them with such severity as the company here quoted has declared its intention of doing; for the impression obtained through correspondence with many companies concerning the disability clause is to the effect that it has in the past and will henceforth be liberally interpreted in any cases where deliberate fraud or dishonesty is not present. Some time must elapse before there will be a sufficient body of precedents, either voluntary on the part of the companies or through court decisions, to enable one to predict the force of the present definition of disability, restricted as it is with relation to the occupation of the insured. Liberal interpretation is therefore to be encouraged; but the insured can never feel safe until the contract clearly states that disability will be defined with reference to his particular occupation and not on the basis of his fitness to follow any gainful calling whatsoever.

[23] The italics are in the original.

With Reference to Cause of Disability

Disability may be defined as above with respect to its effect upon the occupation or profession of the insured or it may be considered with reference to the causes of disability. From the latter viewpoint the clause quoted above contains much that is commendable. It promises benefits for disability due to *bodily injury or disease.* That bodily injury and disease probably cover the majority of cases of disability is evident from a study of a very interesting table prepared by Mr. Sidney H. Pipe in an article already referred to.[24]

Mr. Pipe analyzed 1,229 cases of death among disabled persons so as to show the duration of disability and the distribution of deaths by cause of disability and by age. The causes of disability and the relative frequency of the different causes are of particular interest for present purposes. The following facts are taken from Mr. Pipe's table.

Cause of disability	Number of cases per 1,000 total cases
1. Consumption	234.
2. Paralysis	127.8
3. Insanity	120.0
4. Diseases of the circulatory system	72.7
5. Diseases of the urinary system	52.9
6. Cancer	47.3
7. Injury	44.0
8. Balance	301.3

Bodily injury or disease therefore covers all cases with the possible exception of the last or miscellaneous group the composition of which is not known. One hundred and one companies using the clause define disability in this way. Over half this number (52 in all) further specify that they will consider as disability within the meaning of the clause "the entire and irrecoverable loss of the sight of both eyes, or the severance of both hands above the wrists, or of both feet above the ankles, or of one entire hand and one entire foot." These definitions lead one to believe that the companies using them probably intend to pay benefits in case of disability due to any legitimate cause not excepted in the policy.

It is doubtful whether the companies will include as reasons for paying benefits, deafness, dumbness or insanity. Deafness is

[24] *Transactions of the Actuarial Society of America,* 11:179.

specified by four companies; while the same four and, in addition, four more, name insanity or mental disorder as an accepted cause. No company has made any mention of dumbness and yet this is a contingency that the insured will certainly want to have covered. The preservation of the powers of speech and hearing are vitally important in many occupations and they should be included within the scope of any disability clause where affecting the occupation. Several companies of which the Prudential may be regarded as a type, agree to pay benefits upon the occurrence of disability *from any cause whatsoever*. There is left no doubt as to the scope of this clause.

Restricted Definitions

There are fifteen companies among the total of 127 investigated which have placed limitations upon the causes which will be acceptable for payment of benefits. Some of these limitations may be permissible but some cannot be allowed on any just grounds. The extreme "conservatism" shown in some of these definitions leads one to suspect that the companies were greatly in need of a selling feature and that they secured it in the guise of a supposed "disability" clause. Among the least objectionable of these limitations may be named the following:

1. *Disability due to voluntary acts of the insured not included.*
   - *a.* Disability must result from causes beyond control of the insured.
   - *b.* Bodily injuries must be "external, violent and accidental."
   - *c.* Disability must not be due to voluntary acts of the insured or to a defect or condition existing before the policy was taken out.
   - *d.* Disability must not be due to wilful or immoral acts on the part of the insured.
   - *e.* Disability must not be due to self-inflicted injuries.
   - *f.* Disability must not result from actual or attempted violation of the law.
   - *g.* Disability must not result from intoxication.
2. *Disability due to military or naval service in time of war not included.*

To these limitations there can be no serious objection. They will probably have the same history as have similar exceptions in the application of the regular benefits under life policies. Policy contracts once contained many restrictions as to travel, residence or occupation that are found in very few instances today.

The remaining companies to be considered have defined disability in such a way as clearly to indicate that their intention is to

provide a selling feature and not furnish disability insurance. For in each case the fact is plain that disability from certain causes only is insured against. Cases exist where clauses are issued covering "blindness, deafness and disease or mental disorder." Disability due to bodily injury is therefore not an accepted risk. Statistically this exception is not of great importance since the table above shows that 4.4 per cent only of disability is due to injury, and yet that 4.4 per cent may be of great importance to the individual. In the aggregate this figure may represent the proportion contributed by bodily injuries to all disability; but for the man who travels a great deal this contingency forms a much greater percentage of risk of disability to which he is subject. The company which makes an exception in the case of bodily injury has no right to compare its clause with that of a company insuring against disability "from any cause whatever." Three companies make their clauses applicable in case of accidental injuries but only in case there results *within 90 days of the accident* a loss of sight or the amputation of two limbs. Without the 90-day limitation the same feature is found in another clause. Two of these companies likewise exclude disability due to insanity or to disease complicated with insanity. This comprises 12 per cent of all cases according to Mr. Pipe's table quoted heretofore.

Assignments or Loans Not Permitted

In two cases benefits are promised upon disability of the insured only in case the policy "is still his unencumbered property." These companies insist on cancelling the clause upon an occurrence which can have no possible effect upon the risk incurred and therefore has no just relation to the disability clause. If any effect is produced it must be through an increase in moral hazard; and it is difficult to see how a loan on, or an assignment of, a policy will increase the moral hazard of disability. Some opponents have entertained grave fears for the success of disability insurance because of the existence of this supposedly personal element in the risk. Moral hazard, to be sure, exists in great measure in sickness insurance and malingering offers one of the greatest problems of the health company; but its influence upon *total* and *permanent* disability is not so clean-cut. There is danger that the disability may not be permanent but there is an easy way of caring for such a con-

tingency. Several companies have provided a commendable method of meeting this situation by requiring a probationary period of from six months to one year after disability before benefits will be paid, and if recovery takes place after this time has expired the "recovery" feature common to nearly every clause takes care of the situation. Moral hazard is indeed so small an element in disability insurance that it can well be disregarded and it does not furnish a valid reason for cancelling the clause after an assignment of, or loan upon, a policy.

Most objectionable of all limitations, however, are those making the clause applicable only in case of accidental injuries. The table of causes will show that 44 out of 1,000 cases, or 4.4 per cent of all disability, is due to accidental injury. The company, therefore, which grants benefits for disability due to accidents issues a clause which covers 4.4 per cent of the risk the policyholder incurs. Three companies issue clauses covering disability from accident or bodily injury only. Another has limited its clause to an even greater extent by making it apply only in case of physical disability due to loss of limb, total blindness or total paralysis. But the worst of these limitations is the following: "Injury through external, violent and accidental means *resulting in the severance of both hands, both feet, one hand and one foot, total loss of sight or one eye and one limb.*" In other words, not even *injury* will be compensated if it does not result in one of some half-dozen enumerated kinds of disability. These narrow restrictions are in no way compensated for by paying the full face value of the policy upon the occurrence of such disability, as is provided for by the three companies in question. One company grants the same benefit but introduces a further restriction by the requirement that such disability must occur *within 90 days of the accident.* Two clauses cover disability as thus defined but include, as well, "disability by bodily injury," being thus of slightly broader application. These clauses cannot be condemned in too scathing terms. No insurance commissioner should let the policyholders in his state suffer the imposition which the issue of such contracts implies; and a campaign of publicity should place them in such light before prospective policyholders that they will either be changed or be entirely done away with.

CHAPTER VI

Age and Time Limits to the Application of the Clause

The most carefully written clauses state the time when they come into operation, the circumstances under which they remain in force and the time when they cease to be effective, if at all. In the majority of cases these features are covered by the phraseology used in one of the two following instances: (1) "If the insured, while less than sixty years of age, after the first premium has been paid to the company on account of this policy, shall furnish due proof to the company while the policy is in full force and effect," that he is disabled; or (2) "If after one full annual premium shall have been paid under the above-mentioned policy before default in the payment of any subsequent premium, the insured shall, before attaining the age of sixty years, furnish proof of disability."

Beginning of the Risk

The three parts to each of these clauses, as stated above, are: First, a provision that it begins to operate only after the first premium has been paid; second, that it continues in force only so long as there is no default in the payment of a subsequent or renewal premium; and third, that it ceases to be effective in all cases after the insured has attained the age of sixty years. These three provisions form a part of sixty-one of the clauses studied. A number of clauses are different in detail only. Nine companies, for instance, require a preliminary period of one year, or the payment of two annual premiums on the policy, before the clause becomes effective, and in two cases three full annual premiums must be paid. These precautions may have been taken against a supposed moral hazard. At any rate they are not of an importance which requires that emphasis be given to them. Sixteen companies go no further than to state that the clause is maintained in full effect "while the policy is in force" and ten others make no specification at all with reference to the beginning of the risk.

Default in Premiums

The second feature referred to in connection with the parts of clauses here reproduced gains its importance from the fact that a default in premium payments, while it does not necessarily terminate the regular death or endowment benefits of the policy and in equitable contracts never does, may yet render the disability contract void. For, literally taken, it provides that the disability protection ceases the moment a default occurs in the payment of premiums. It is probable that most companies, with their known liberality in interpreting insurance contracts, would, upon the payment of defaulted premiums, consider the disability insurance to be again valid, and yet the insured wants to be certain of this. There are at least three instances in which this question of interpretation may arise and where its satisfactory solution will mean much to the insured: first, during the period of grace allowed for the payment of premiums; second, in cases where the policy allows automatic extended insurance upon default, with permission to repay the back premiums later or hold them as a lien against the policy, and to continue the insurance in force without the necessity for a new medical examination; and third, where the policy is surrendered for paid-up or extended term insurance. The latter case is of no concern of course, except where the benefit takes the form of maturity of the policy and its payment by some means to the insured, since the new policy issued after surrender or lapse is always paid-up. The question then is whether the company will allow the reinstatement of the disability protection under the same terms as the regular life insurance protection in case premiums have been defaulted and they are later paid up; or whether, in case the company permits thirty days grace in payment of premiums, or allows the reserve to be drawn upon to pay them at any time, it will consider the disability insurance in force during this time and pay benefits where disability occurs during this period in the same manner that it will hold itself liable to pay death benefits where death occurs within the same period. Ninety-six companies provide the protection in question at any time "*before* default in the payment of any subsequent or renewal premium." Strictly speaking, then, the great majority of the clauses do not give disability protection under the same policy conditions as the regular life benefits, for during or after the period of grace allowed in premium payments the disability insurance

lapses. Twenty-one companies state, more liberally, that the clause operates "while the policy is in full force and effect" or "during the continuance of the policy."

Cancellation by the Insured and by the Company

Closely associated with the matter of default in payment of premiums is a provision found in a number of contracts whereby the disability clause is automatically cancelled upon failure to pay the extra premium required for this benefit. Cancellation may be effected automatically in this way or by contractual agreement to allow the insured to discontinue the disability insurance at will. Cancellation in the latter sense does not arise of course, except where an extra premium has been charged for the disability protection; and the regular cancellation provision offers no difficulties in the majority of cases, merely permitting the insured, when he desires to discontinue his disability insurance, to have his premium reduced by the amount paid for the extra benefit. There are two companies, however, that give this privilege to the company as well as to the insured. One allows the clause to be cancelled by the insured *or by the company* "provided the insured is engaged in a more hazardous occupation than at the time of its (the policy's) issuance." The other states that "within the period of grace following any anniversary of this contract, the total disability benefit may be cancelled by either the insured *or the company*." Clearly, clauses of this nature are a travesty upon life insurance, a fundamental principle of which is to grant unilateral contracts that the company must maintain for so long as the insured will pay premiums. And undoubtedly one of the reasons for placing the disability clause in life policies is to grant *permanent* disability protection to the insured over a long period and not give the company the privilege, as is done in case of accident and health policies granting this protection, of refusing to continue the insurance at the close of any policy year. In the two cases referred to it can be assumed that in later years when the probability is very great that the insured may become totally disabled, due to disease or old age, and when the company sees that the insured is approaching such a condition of total disability, the company will at once exercise its option to cancel the clause and the insured will be deprived of this protection just when he is most in need of it.

Automatic cancellation provides for the cessation of disability protection upon failure to pay the *extra* premium charged for this benefit. It operates as an added restriction upon the term of the clause and produces like results to the provision regarding default in the payment of regular premiums. Its analysis throws further light on the question whether the disability protection is to be continued during the period of grace in premium payments. In the case of three companies, it is doubtful if this provision grants the regular grace in premium payments before the disability benefit would automatically cancel itself. The rider issued by one company in connection with its term policies reads: "Failure to pay any premiums *when due* will avoid this contract." Two clauses state that "non-payment of the additional premium in accordance with the above" will render the clause null and void; and another contract provides that "this rider is issued for the term of twelve months from date and may be renewed subject to all its conditions and privileges for successive terms of twelve months *by the payment of the premium in advance.*" In one case, this requirement is indefinite but it would probably allow grace in premium payments. It states that "it will be automatically cancelled when premiums cease to be paid." In the case of six companies there is little question but the automatic cancellation feature will not apply until after the regular thirty days of grace has elapsed. For instance, "failure to pay the above premium or any premium or installment due on said policy *within the time allowed thereunder,* will render this rider null and void." One company provides in its clause that the payment of extra premiums for disability benefit is "subject in every respect to the same regulations and conditions" as the payment of regular premiums for the policy. A atitude of thirty days of grace before the clause can be cancelled is found in the case of three companies, in conjunction with the provision making the payment of the extra premiums a consideration for the contract. One clause reads, "In consideration of . . . . the payment of all premiums . . . . *in accordance with the terms,*" of the policy. Another is issued "in consideration of the payment of the premium provided for in said policy *as the same becomes payable*"; the last one "in consideration of an additional . . . . premium of $ . . . . which . . . . is to be paid . . . . *subject to the same conditions as to payment as the regular premium.*" One clause leaves no doubt as

to the question under discussion by providing that the automatic cancellation shall take place upon "failure to pay the premium for this additional benefit *before the expiry of the days of grace.*"

Benefits During Premium Paying Period Only

The policies of twelve companies contain a peculiarly unjust provision limiting the benefits under the clause to the period during which premium payments are to be made. No difficulties will arise where the waiver of premiums is the only benefit granted upon the insured becoming disabled, but each of these twelve companies considers the policy matured when disability occurs and begins its payment in some form to the insured. It is as regards this "maturity" benefit that the limitation here considered becomes important. Some of these clauses have provisions as follows: (1) the installment benefit will be "null and void if any such disability occurs after the period for the payment of premiums hereon"; (2) benefits are "applicable only during the premium paying period of this contract"; (3) benefits are payable "during the continuance of this policy *and the payment of premiums hereon*"; (4) "total disability insurance is limited *to the number of years premiums are payable.*"

Limited Time for Proof of Disability

Another objectionable provision found in several clauses requires that proof of disability shall be made within three or four months of its occurrence, all benefits otherwise lapsing. This limitation usually takes the following form:

> Immediately after the commencement of the total disability, full particulars thereof must be given in writing to the company at its home office together with the address and whereabouts of the insured; and within 120 days[25] after the commencement of the permanent total disability, there must be given satisfactory proof of permanent and total disability.
>
> No suit on account of alleged permanent total disability shall be maintainable if commenced before the expiration of one year or after the expiration of two years from the date of the happening of the disability.

This feature is found, substantially as quoted, in the clauses of ten companies. Not all these companies include the limitation that suit cannot be brought at all after the expiration of two years. In its complete form this clause compels the insured to furnish proof

[25] In some cases 90 days.

of disability within the narrow limits of a few months upon pain of forfeiting all benefits, and further restrains him from bringing legal proceedings to obtain his rights under the policy except within a period of one year following a probationary period of 12 months. Disregarding the somewhat unimportant differences in detail between the clause quoted and those of the different companies in question the fact remains that in one and all they agree in placing limitations upon the benefits received merely because of failure to comply with technical requirements as to making proof; and these may happen in plenty of cases where there is no question as to the bona-fide character of the disability. The companies using this clause must face plainly the fact that they are refusing the benefit under circumstances where there is no questioning the validity of the disability.

The consideration of the first two of the three limitations stated as affecting the application of the disability clause, viz., the time when it comes into operation and the circumstances under which it remains in force has led to an extended discussion of four ways in which the general application of the clause is restricted. They are: (1) the avoidance of the clause by default in premium payments; (2) avoidance by cancellation by the company or automatically through failure to pay the extra premium for the disability benefit; (3) the limitation of benefits to the period during which premiums are payable; and (4) a limitation of the time within which proof of disability will be accepted. If the objections found to these restrictions can be accepted as reasonable then the conclusion follows that the companies issuing such clauses are not acting with the same degree of liberality in connection with the disability clause as they grant in connection with the regular death and endowment benefits under the same policies; and they are following a more conservative course than circumstances justify.

Age Limits

The final limitation placed by most companies upon the use of this clause is one which eliminates its benefits after a certain age has been reached. It has been shown that a broadly worded disability clause covers disability in case of accident or disease. Information is lacking to determine the amount of disability which in the later years of life may be due to disease or to a general weaken-

ing of the vital system. It has been thought advisable therefore by many companies to place an age limit beyond which, if disability occurs, the benefits under the clause will not be allowed. In the actuarial studies, heretofore referred to, disability premiums have been calculated on the assumption that the benefits shall cease in case disability does not occur prior to age sixty or approximately that age. From the standpoint of the insured this limitation may be unfortunate. The man who is looking for disability insurance wants to be protected throughout the entire period of his life. The company, however, can hardly be blamed in view of the present status of our actuarial information, for placing a limitation upon the use of the clause after age sixty. From another viewpoint there is adequate reason for the termination of disability benefits after age sixty. The clause stands as a guarantee that the permanence of a man's insurance will not be endangered by his becoming disabled. But the "insurance" period of life is the period of productivity and that ordinarily does not extend beyond sixty or sixty-five years of age. In other words, by that time the average man retires from active business or professional life and his later years are, or should be, cared for by the accumulations previously made. There is no especial reason, therefore, why disability insurance should cover this later period.

Ninety-four companies out of the one hundred and twenty-seven studied have placed this limit at age sixty. A few instances exist where age sixty-five has been chosen and a few have fixed upon fifty-five. The later age is objectionable and, it is believed, unnecessary, for the actuarial information at hand is sufficient to justify the extension of the limit to age sixty at least, without undue risk. Twenty clauses apply without limit of age, and one extends to age eighty, which is the same for all practical purposes. The latter, the clause of the Fidelity Mutual, matures the policy to which it is attached as an endowment at age eighty. This is an especially worthy feature of this contract and could well be copied by other companies.

Benefits After Age Sixty

Not all companies which limit the use of the clause to some age, as sixty, have left the insured altogether without protection after that time. A number of them have provided an excellent modification

whereby the premiums will be al owed to accumulate as a lien against the face value of the policy *without interest.* In this contingency the contract usually states that loan and surrender values will increase in the same way as though the insured were paying premiums. This in effect charges the lien the same as any indebtedness against the policy except as to the payment of interest on the lien. The New York Life Insurance Company does not permit the premiums to be accumulated as a lien against the policy after age sixty, but instead stipulates that they shall operate to reduce the amount of insurance in force. This provision is more liberal to the insured than the others as is shown by the effect it produces upon loan and surrender values. Under the New York Life method of treating premium indebtedness after age sixty, loan and surrender values are reduced, while the clauses previously enumerated allow these values to increase as before. The contrast in these two methods is shown in case a policy is lapsed after age sixty and its surrender value taken. With the New York Life the premiums paid are deducted from the face value of the policy and the surrender value of this reduced amount of insurance taken. With the other clauses, the surrender value of the original sum insured is taken and from this amount is deducted the premium indebtedness. To put the same statement concretely, assume two policies of $1,000 face value each, one in the New York Life and one in a company which does not grant the New York Life provision; and assume that each is surrendered after $100 has been accumulated as a premium lien against it. If the reserve on each policy at the time of lapse is $200, according to the New York Life clause the $100 indebtedness will be deducted from the face value of the policy leaving a policy with a face value of $900, the surrender value of which would be nine-tenths of $200 or $180. In the case of the other policy, the surrender value of the $1,000 policy would be taken, namely $200, and from that would be deducted the $100 indebtedness, the insured receiving $100 in cash in full settlement of the company's liability. In this respect the New York clause is unique and is much more liberal than that of any other company.

CHAPTER VII

Benefits Granted by the Disability Clause—Kind and Amount of Benefits

Kinds of Benefits

Two types of benefits are given by these clauses, the first one allowing the payment of the premium to be waived without in any way affecting the values granted by the insurance contract. Its main purpose is to enable the insured to keep his insurance in force at a time when his income has been cut off by his inability to follow further the duties of his occupation or profession. The lapsing of his policy at this time might work tremendous hardship and even injustice on the insured. The disability clause circumvents the difficulty by providing, in effect, that the company will pay his premiums for the insured. Most of the actuarial studies of disability have been made with this benefit in mind. The other possibility that is presented is to consider the policy matured and allow its payment in some form to the disabled policyholder. There are undoubtedly many cases of disability where the purposes of insurance to the holder of the contract would be better served by immediate payment of the policy than by merely considering the premiums paid up and allowing its maturity in the regular way at death or as an endowment. Both these types of benefits have been granted by the companies insuring against disability in the United States; in some cases giving one, in some the other, as an exclusive benefit, and in a number of instances granting a choice between the two. Where the policy matures upon disability it is usually paid in one of three forms: in installments, in a single cash sum or as an annuity.

Waiver of Premiums

The waiver of premiums is the benefit upon which attention was first fixed in the United States. To it the actuaries have largely confined their studies; and probably as a result this form of benefit has found most favor among the companies making use of the clause. Sixty-six companies, or approximately one-half the

total number, make the waiver of premium the exclusive benefit; while thirty-five more grant it in combination with other options. The most cursory examination of the clause historically shows that many companies have issued it at first with the waiver of premium benefit alone included and shortly thereafter have revised their clauses so as to make them payable in installments. It is perfectly proper for the companies to act with due care in extending their liability in case of disability and yet it is easily demonstrable that the liability is not increased to unwarrantable proportions by the inclusion of the maturity benefit. The company's risk in case the waiver of premium is allowed is measured by the number of premiums which would have to be paid between the time of disability and the time of death. This period has been found by Mr. Pipe[28] to be on the average one year, four months and twenty-eight days among fraternal society risks. An average of two premiums would thus be paid by the company before the policy would regularly mature by death of the insured. If now the full face value of the policy were paid upon disability the added risk of the company would be only the difference between $1,000 due now and the value now (present value) of $1,000 due in one year, four months and twenty-eight days. Discount the accuracy of Mr. Pipe's figures as much as you will and the comparison still has not furnished great objection to the granting of a maturity benefit. For if the correct average interval of time between disability and death should chance to be even four or five years in the experience of the old line companies still the liability of the company will be increased only by the difference between $1,000 and its discounted value for these four or five years. The realization of this situation by the companies concerned partly accounts for the rapid extension of the privilege of installment benefits under the disability clause. Closely allied with this is the important fact that the waiver of premiums does not in most cases meet the difficulty facing a disabled man who has no income with which to continue his insurance, or to take care of himself while in this disabled condition. It is not true that there is no place for the waiver of premium benefit in disability insurance. There are many policyholders who need protection only against the possible lapse of their insurance. But why should it not be possible

[28] *Transactions Actuarial Society of America*, Oct. 1909, p. 179.

for a company to grant either benefit, in the same clause or in separate clauses, and then give the insured the privilege of choosing the one best suited to his needs?

Maturity of the Policy

The maturity benefit for disability takes one of three forms: (1) an installment benefit, paying the policy value in ten or twenty payments, or as a continuous installment, that is, a certain number of payments guaranteed with the promise of continuing them, after the number guaranteed have been paid, for so long thereafter as the beneficiary may live; (2) a few companies pay a single cash sum in settlement of all liability under the policy and (3) a few grant a life annuity to the disabled person.

Amount of this Benefit

The amount or the value which this maturity benefit may represent has already been referred to briefly on page 40. If a man will in the average case become a death claim within the short space of one and one-half years after disability has resulted, the company must hold on his policy at the time of disability a reserve based on the probability of his dying in one and one-half years; or, in approximately the same terms, an amount which with interest added for this period between disability and death will equal $1,000. So upon the occurrence of disability the reserve value of the policy should be very nearly as much as the face value considering the short time the policyholder still has to live. The person who gets the waiver of premium benefit gets exactly this value and any settlement of the contract for a smaller amount of money is not doing justice to the insured. It is to be regretted that none of the actuaries who have made studies of disability has furnished tables comparing the full reserve on a disabled life with the regular American Experience Table reserves in such a way as to make the comparisons suggested in this discussion.

Payment of Policy in Twenty Installments

In the usual type of installment benefit, provision is made for the payment of the face value of the policy in twenty equal annual installments. The present value of these installments of $50 each,

computing interest at a rate of 3½ per cent, is equal to $736. Such clauses then require the insured to give up for $736 a policy which would within a short time mature by death for full $1,000. Opponents of the disability clause have not sufficiently emphasized this feature, by means of which the company, upon the pretext of granting a benefit, is actually reducing its liability to the policyholder. The payment of the full face value $1,000 or its equivalent is the thing upon which the insured must ultimately insist. This will make the risk for the company equal to the difference between $1,000 and the present value of $1,000 computed according to the probability of death among disabled persons. That this will cost the company more than the ordinary twenty-installment benefit as now given is apparent and it must in fairness be assumed that the insured will be charged more for the greater benefit. And yet there is no reason to doubt that the insured will be ready to pay the higher premium when it is explained that he is getting a contract which gives him all he deserves and no less. Only one company among those granting the twenty-installment benefit has yet attempted thus to treat the insured and that but recently. On October 1, 1913, the Travelers Insurance Company put into operation a new twenty-installment benefit disability contract which pays the equivalent of the full $1,000 policy. This new clause promises upon disability twenty installments of $68 each and the commuted value of these payments on a 3½ per cent interest basis is equal to $1,000.

Payment of Policy in Ten Installments

The ten-installment contracts offer much the same peculiarities as the ones just discussed. One company pays one-tenth of 85 per cent of the face value of the policy. These payments have a present worth of approximately $736 and the intention was undoubtedly to make the benefit identical in value with the twenty-installment policy. The remaining contracts of this class agree to pay the *face value* in ten equal payments. This is equivalent to $861 cash. The majority of the ten-payment contracts are therefore more liberal than any others yet discussed with the exception of the Travelers' clause. Several companies have reduced their liability from that here stated, in the case of both ten and twenty payments, by the unfair and unnecessary requirement that the annual premium shall in each case be deducted from the installment to be paid.

Payment of Policy as a Continuous Installment

Continuous installment provisions are found in the contracts of but eight companies. In three instances the payments are made equal to one-twentieth of the face of the policy, to continue for twenty payments certain, and a life annuity thereafter. The "certain" element of this benefit has been shown previously to equal a cash payment of $736 at 3½ per cent interest. That the life annuity element when added does not materially increase the cost of the benefit to the company is clearly indicated by reference to Mr. Pipe's figures of the average duration of disability before death occurs. The chance that a disabled person will live throughout the payment of the twenty installments is very small. There are a few cases, such as insanity and deafness, where the annuity feature of this benefit will be of immense importance to the individual, and it is because such cases exist that it would be desirable to add the "continuous" element to all ten- or twenty-installment benefits. Two companies allow the insured three different continuous installment options, namely the face of the policy in twenty payments certain; 93 per cent of the face value in fifteen payments certain; or 85 per cent of the face value in ten certain installments. The cash values of these three options, so far as concerns the "certain" element are, reckoning interest at 3½ per cent, respectively $736, $739 and $732. It is apparently the intention of the two companies concerned to put the three options on an equivalent money basis; but the cost of the annuity element in the three cases will be different, for the probability is much greater that the insured will live to collect his annuity after ten years than that he will receive anything on it beyond twenty years; and, furthermore, after the ten certain payments he receives $85 each year as compared with only $50 in case of the twenty certain payments. The policyholder who realizes this difference will invariably choose the ten installments and annuity thereafter. Two companies make the amount of each of the twenty guaranteed payments equal to one-twentieth of two-thirds of the amount of insurance. The cash value of this sum is $491; and the effect of such a provision is that the insured surrenders for $491 a contract which in the average case will mature in less than one and one-half years for $1,000. Such a benefit will be accepted by few persons other than those who are in dire need of funds after

disability has occurred. One other clause is the same in principle as this $491 contract, differing only in the fact that payments are made monthly instead of annually.

Cash Payment

The settlement of a disability contract by payment of a single sum of money furnishes opportunity for direct comparison between actual values given by the various companies and the amounts which may be justly expected. Five companies have promised that in case proof of disability is accepted by the company, *the full amount insured* shall be due and payable to the policyholder. This taken in connection with the facts that two of these companies charge no extra premium for the clause and two charge a flat rate of only 50 cents per $1,000 insured, and that only one of the five companies places any age limit upon the use of the clause, makes it appear that these companies have granted a most liberal benefit indeed; because this cash value of $1,000 must be compared with $736 received in case of the twenty-installment payment or $861 in case of ten installments. The significance of this liberality is, however, lost when the conditions under which the benefit is granted are further examined. These contracts pay the full amount insured but pay only in case disability is due to accident and then only where the accident has resulted in the loss of both hands, both feet, both eyes, etc., *i.e.*, there are only a few specified kinds of injury which will mature the policy; and it must be remembered that all accidental injuries comprehend but 4.4 per cent[27] of the total cases of disability. One company adds a further restriction in the requirement that the injury specified must have been sustained "while riding as a passenger in or upon a regularly licensed elevator or upon a public passenger conveyance provided by a common carrier for regular transportation of passengers." Such a contract as this should not be allowed to parade as disability insurance. One company only among the five under consideration defines disability broadly enough to include all cases of accident. Under the restrictions here enumerated the payment of a benefit equal to the face value of the policy cannot be commended and these contracts are among the most unfair and illusory of all the clauses

[27] See page 49.

granted by the one-hundred and twenty-seven companies here studied.

Five companies promise the payment of one-half the face value of the policy in full settlement of the claim upon acceptance of proof of disability. The statement itself is sufficient to show the injustice of thus confiscating the greater part of a policy which will soon mature by death for its full face value. Furthermore the disability benefit will never be used in case the reserve on the policy is greater than one-half the sum insured, since the cash surrender value can be obtained under the regular non-forfeiture provisions. The extension of this benefit throughout the life of the policy without any limitation as to the age of the insured, as is done by three of the five companies, is likewise of no significance since the worth of the benefit ceases as soon as the reserve, based on the American Experience table of mortality, is above $500. The following table, showing reserves at specified ages computed upon the American Experience mortality basis with a 3½ per cent interest rate, clearly demonstrates how an automatic age limit is thus fixed:

RESERVES ON AN ORDINARY LIFE POLICY

Attained age of insured	Age when policy was issued				
	20	30	40	50	60
50	312.60	258.64	166.89		
60	478.23	437.28	367.63	240.96	
62	512.67	474.42	409.37	291.05	66.00
64		511.41	450.93	340.95	131.73
67			512.23	414.52	228.66
70				485.23	321.81
71				507.91	351.70
77					519.24

The operation of the reserves, therefore, upon policies issued at ages 20, 30, 40, 50 and 60 automatically sets the age limits, beyond which the disability benefit will be of no avail, at 62, 64, 67, 71 and 77 years respectively. This fact makes unnecessary the provision in one clause that the cash value of the policy may be taken if greater than one-half the sum insured. One company allows a cash

payment after disability equal to the full reserve on a paid-up policy. This reserve equals the net single premium which would purchase the policy computed on the American Experience Table rate of mortality and 3 per cent interest basis. This method would be correct in theory, were the rate of mortality among disabled lives used in computing the reserve instead of the rate among *active* lives; but as it stands it is not as liberal as the provision for payment of one-half the sum insured since in all cases under the ages 62, 64, 67, 71 and 77, in the policies here referred to, the reserve is below $500. Obviously above these ages the two contracts are on a par. When the reserve on a paid-up policy shall be granted, as computed on a rate of mortality among disabled lives, then, and only then, will the insured obtain a benefit of a financial value equivalent to the waiver of premium benefit so generally available.

Payment of an Annuity

Seven companies only have seen fit to pay disability benefits in the form of an annuity. In the analysis of this annuity two important considerations are presented: (1) the kind of payment, and (2) its amount. One clause guarantees that ten payments will be made regardless of the death of the annuitant previous to their completion, and the annuity will be continued after the ten-year period for only so long as he lives, a table in the policy stating the yearly amount. The other companies, with a single exception, provide for an ordinary life annuity payable during the life of the disabled person; the exception noted granting a five-year term annuity, *i. e.*, payments limited to five in any case and to less than five in event of the prior death of the annuitant. Were there any possible justification for this clause it fails in face of the stipulation that *recovery or the death of the insured before the completion of five payments will terminate the liability of the company.* The five annual installments, were their payment guaranteed, have a cash value of only $467 and this is accepted in lieu of all other benefits under the policy. $467 is, therefore, the maximum amount recoverable under this annuity contract and there is great probability that the insured will die or recover before the five payments have been made and that the actual amount received will be much less. The following table is arranged to make easy a comparison of the amount of the annuity paid by each of these companies:

Age	1	2	3	4	5	6	7	Equitable rates (males)
	10 p'm'ts guarant'd	Straight life ann.	Straight life ann.	Straight life ann.	Straight life ann.	Straight life ann.	5 yr. term ann.	Straight life ann.
25....	$36.00	$49.04	$63.00	—	$50.00	$10 per mo.	$100	$44.55
30....	38.00	51.62	68.00	—	50.00	10 " "	100	46.97
40....	43.00	59.30	77.00	—	50.00	10 " "	100	53.97
50....	51.00	72.72	94.00	—	50.00	10 " "	100	65.72
60....	63.00	97.44	118.00	—	50.00	10 " "	100	86.37
70....	76.00	145.64	——	—	50.00	10 " "	100	124.82
80....	83.00	243.02	——	—	50.00	10 " "	100	182.88

The annuity rates of the Equitable Life Assurance Society are included in this table to furnish a basis for comparison of the annuity granted after disability by these seven companies with the annuity given to a person not disabled. The significance of the comparison lies in the apparent fact that the mortality table on which the disability annuities were computed is the same as that used for computing rates upon annuitants who are not disabled. The statement has been repeatedly made that the rate of mortality among disabled persons is much greater than among active lives. Its truth is demonstrated by the following table taken from Mr. Mead's study of mortality among disabled lives,[28] showing the present value of a payment of $1 continued throughout the life of the individual, as computed according to different rates of mortality:

INVALIDITY VALUES AT 3½ PER CENT INTEREST

Age	British Friendly Societies	Foresters (Pipe) "select" mortality	Foresters (Pipe) "ultimate" mortality	Maccabees (Mead)	Combined Fraternal Experience (Mead)	American Experience Table of Mortality
20.....	$4.57	$4.24	$2.89	$2.99	$6.39	$21.14
30.....	7.07	6.78	4.73	5.74	8.00	19.61
40.....	8.43	6.83	5.02	6.32	7.38	17.45
50.....	8.52	6.29	4.92	6.39	6.74	14.53
60.....	7.99	5.56	4.80	6.31	6.32	11.03
70.....	6.57	4.93	5.00	5.97	6.04	7.48
80.....	4.03	——	——	4.44	4.44	4.44

[28] *Transactions of the Actuarial Society of America*, 12:83.

The annuity values, *i.e.*, the present values of $1 paid annually during life, are very much smaller in the first five columns than in the last, which considers the rate of mortality among active lives; and for all ages until 80, at which time the rate of mortality among disabled risks is generally assumed to be the same as the American Experience rate. The cause for the great discrepancy between the American Experience rates and those in the first five columns is, of course, that disabled persons do not live as long as those not disabled and therefore not as many annual payments are made. The injustice, therefore, of computing invalidity annuity payments on American Experience rates of mortality or of granting annuity benefits that are no more liberal or scarcely more so than payments so computed is apparent. Not an exception exists to this serious charge against the annuity benefits granted under the disability clause.

CHAPTER VIII

Benefits (*cont.*)—Effect of Indebtedness, Death or Recovery on the Policy

The presentation of the facts regarding the kind of benefits granted under the disability contract and the amount of value obtained in each case does not enable one to predict the final results that may obtain from the existence of this clause in a life insurance policy. There are four circumstances under which one or more of the benefits here described may be greatly modified. The existence of indebtedness on a policy which is payable in installments after disability may considerably affect the amount of these installments; the death of the insured before the completion of installment payments raises the question whether they will be continued and what settlement will be made in case they are not; the recovery of the insured from his supposedly permanent disability necessitates a similar decision with respect to the reinstatement of the policy and the premiums to be paid thereafter; and finally there remains the significant question, affecting the disability clause in participating contracts, whether the insured is to receive or to forfeit his dividends after disability has occurred.

Indebtedness Deducted from Face Value or from Commuted Value

When a policy is encumbered with liens at the time of disability of the insured it is important to know how this indebtedess will affect the amount of the installments to be received. The majority of clauses provide that it shall be deducted from the face value of the policy and one-twentieth or one-tenth, as the case may be, of this reduced amount be paid in each installment. By this method of treatment the liens against the policy are at once wiped out. In effect the policy becomes matured for its face value; and the company then deducts charges against it and begins payment of the remainder in installments. Five companies have followed a plan of reducing the amount of each installment in the proportion which the indebtedness bears to three-fourths of the sum insured. The effect of this scheme is to penalize the insured for having borrowed

on his policy by reducing his disability benefit. To illustrate: in case a policy has a lien of $250 standing against it, by this method each installment will be reduced in the proportion which $250 bears to $750, or one-third making each of the twenty installments equal to $33.33. By the more usual method, as first stated, each payment would be reduced in the proportion which $250 bears to $1,000, or one-fourth; in this case the insured would receive annually upon his $1,000 policy $37.50 as compared with $33.33 in the previous instance. This method of treatment is justified by the explanation that the insured is promised, not the face value of the policy, but only the commuted value of the face amount paid in installments and it is further explained that the policy is thus immediately cleared of its indebtedness instead of letting the latter be spread over the life of the twenty payments. It will be recalled (page 64) that serious objection was found to the maturity of a policy for the commuted value only of the sum insured paid in installments; and this penalty but adds one more charge against such clauses. If, as was earlier intimated, the development of the disability clause lies in the direction of granting as large an installment benefit as can be purchased by the face value of the policy at the time of disability, then this method of penalizing policy loans will have no reason for further continuing. The companies adopting this practice contend that there is theoretic justification for charging indebtedness in this way against the cash value of the policy, since on the maturity of the insurance the loans must be paid before any further benefit can be obtained. Just as good reasons can be advanced however for considering that the policy is not fully matured until it becomes a death or an endowment claim. In this case the charging of indebtedness according to the above method is equivalent to requiring that the loans must be paid at once in order that the insured may obtain any benefit for disability. Loans, when granted, are made payable at a fixed time or at the option of the borrower; but here a new scheme is introduced by which the company requires the immediate payment of the loan as a prerequisite to the receipt of disability benefits.

Reduction of Number of Installments

A few companies have arranged the disposal of indebtedness against the insurance in such a way as not to interfere with dis-

ability benefits, by deducting any loans from the face value of the policy while at the same time making the installments paid for disability equal to one-tenth or one-twentieth of the sum insured. The effect of this is to reduce the number of installments that will be paid and the loan does not affect the disability benefits until the policy value has been completely exhausted. There is a further result from the fact that the indebtedness now continues to stand as a lien against the policy, and since liens are secured by the reserve on a policy, the reduction of the amount of insurance in force by payment of installments will gradually reduce the reserve on the policy until it is below the amount of the lien. The New York Life clause is the only one which has attempted to care for this contingency. It provides that, whenever any installment becomes payable and there is an indebtedness on the policy in excess of the cash surrender value of the reduced amount of insurance, the company shall apply such part of the installment as may be necessary to reduce the indebtedness to the amount secured by the cash surrender value. The operation of this provision can best be shown by a simple illustration. Suppose an ordinary life policy is issued at age 30, the insured becoming disabled at age 50 and the New York Life beginning payment of his $1,000 policy in annual sums of $100 and suppose an indebtedness of $200 stands against the policy. The annual payments reduce the insurance in force each year by $100 and the following table shows the application of indebtedness under this agreement:

Attained age	Payments made to policyholders	Insurance in force	Reserve per $1,000 insurance Am. Ex. 3%	Reserve on insurance in force	Indebtedness against policy
50.....		$1000	$276	$276	$200
51.....	$100	900	293	264	200
52.....	100	800	311	249	200
53.....	100	700	329	230	200
54.....	100	600	347	208	200
55.....	100	500	365	183	200
56.....	100	400	383	153	200

By the time the fifth annual payment is made to the insured the reserve on the insurance then in force is reduced to $183 and the debt against the policy is $200. By the terms of the agreement $17

would be taken from the fifth yearly installment and applied in reduction of the lien to $183. The debt now stands at the exact amount of reserve on the policy but this does not cancel the contract; for, in case the policy matures by death before the next payment is due, its value to the beneficiary will be $1,000 less the five payments made and the indebtedness of $183.

Two cases exist where the insurance company requires all indebtedness to be paid up before the installments begin. It is probable that the lien would be reduced annually by the amount of the payment until it was finally extinguished. This plan is unwise for, if the insured has any reason for choosing installment payments after disability, it is because he will have urgent need for his insurance money *at once*. One company apparently seeks to evade payment of disability benefits entirely where indebtedness exists against the policy since it agrees to pay them "if there be no indebtedness."

No Provision for Indebtedness

In a considerable number of clauses no reference has been made to this important subject and its omission is one which may result in grave consequences to some of the parties concerned. The difficulty of dealing properly with policy loans after disability is apparent after the numerous methods are considered by which the companies attempt to cope with the problem, and the necessity, likewise, of having to face the problem grows greater with the continued extension of their loan privileges by companies, as a result of competition or legislative enactment. The growth of loans on insurance policies since 1906 has been one of the most startling of recent developments in life insurance.

Effect of Death

The death of the insured before the policy has been completely paid to him in installments raises the question whether the payments will continue as before and, in case they are not continued, the kind of settlement that will be made. The majority of the clauses that deal at all with this situation assume that a policy once matured by disability is not affected by death and continue to pay annual sums until the promised number are completed. Four companies grant a further option to the beneficiary of receiving the

commuted value of the remaining installments, computed at 3½ per cent interest. One company *requires* that the commuted value be taken and discounts the future payments at 6 per cent, instead of 3½. This is unnecessary, and it only adds one more charge against a particular clause which has very little to commend it to the insuring public. Since the companies have penalized the insured by making him take a smaller cash value upon disability than at death merely in order to obtain insurance benefits at once, they should now, to be consistent, grant his beneficiary the privilege, at death, of reinstating the policy and removing the penalty. A number of companies have done this by the excellent provision in their clauses that the unpaid balance of the face of the policy will be immediately available at the death of the insured—the insurance in force at any time is equal to the amount of the policy less any payments that have been made. One company charges interest on installments paid in case the policy is so matured by death; in this instance a rate of 5 per cent. This company may well be classed with the one above which commutes the remaining installments at 6 per cent.

Effect of Recovery

The disability clause proposes to pay benefits only in case the insured has become *totally and permanently* incapacitated and the more carefully framed contracts provide that proof of disability may be required by the company, or state that benefits will be paid only so long as the disability remains total and permanent. There will undoubtedly be a few cases in the experience of companies dealing with this risk where supposedly permanent disablement will turn out to be temporary only and the question will then arise as to what shall be done with the benefits already paid. In case the waiver of premiums is the sole benefit there are two courses which the company may follow: the insured may be required to resume the payment of premiums from the date of recovery with no penalty attached because the disability did not happen to be permanent, or the premiums paid by the company can be charged as a lien against the policy. It speaks well for the liberality of insurance companies generally that the first method is the one chosen in most cases. The few cases where the second is used (and in these cases five or six per cent interest is always charged on these liens) are found in

clauses of the most undesirable kind, clauses containing many of the objectionable features already referred to. One company even goes to the extent of requiring the resumption of premium payments "if the insured shall recover *or has the ability to pay.*" Recovery from disability offers greater difficulties where the policy is being paid in installments than where the waiver of premiums is the only benefit. The better class of clauses meet the situation by a provision, to which attention was called in discussing the effects of death upon disability benefits (page 75) by the terms of which the amount of insurance in force is at all times equal to the amount of the policy less any payments that have been made.

The recovery of the insured from disability, however, brings up a question not to be met with in case of death, namely, what will be the amount of the premium to be paid on the policy henceforth? It is scarcely right, for instance, that the insured shall continue to pay the same premium in case of recovery after half the sum insured has been paid to him by the company that was paid when he still had the full face value of the policy available at death. Very few companies state specifically that premiums will be reduced after recovery proportionately to the reduction in the insurance in force but most of them provide that the payment of any benefit for disability will proportionately reduce the loan, surrender and *other* values. Possibly "other" values include premiums—there is no direct way of determining. Two companies, with a liberality which can scarcely be justified, fail to charge the installments paid before recovery as an indebtedness against the policy, and agree to pay the full face value of the policy at death. One of these companies charges no extra premium for the benefit, the other charges fifty cents per year. The liberality in one case at least is lessened by the requirement that from the amount of each installment paid during disability is to be deducted the amount of the regular premium. This far overbalances the recovery benefit, for from the regular installment of $50 paid on an ordinary life policy issued at age twenty-five there would be deducted a premium of about $20. With this very material reduction of the installment by two-fifths must be contrasted the liberal benefit in case of recovery, at the same time keeping in mind the fact that cases of recovery will be rare and that the company's liberality will not occasion it any considerable expense.

Reinstatement of Original Policy

The most objectionable of all methods of dealing with recovery from disability is found in the contracts of sixteen companies. Differing in detail, they all subscribe to the general outline of a plan the most stringent form of which is as follows: The policy may be reinstated after recovery upon (1) the insured passing a medical examination to show his insurability; (2) the repayment to the company of (*a*) all installments received; (*b*) all arrears in premiums, and (*c*) compound interest on both at five or six per cent. In some instances the insured is given an option of letting this sum stand as a lien against his policy, with interest annually, and subject to all the loan requirements of the contract—a meager substitute indeed for one of the most unnecessary and unworthy features found in one hundred and twenty-seven disability contracts.

CHAPTER IX

Payment of Dividends after Disability

The fourth and last modification of the benefits paid for disability arises in connection with the payment of dividends on participating policies. The question of dividends may arise in connection with the waiver of premium benefit or where a policy is being paid in periodic installments.

Dividends after Waiver of Premiums

Eighty-seven companies out of one hundred and one which grant the waiver of premium benefit have made no mention of dividends. Some of these companies issue only non-participating policies, hence the question of dividends cannot arise, but the greater share of them write participating insurance. An illustration will clearly demonstrate the importance of this question. In the year 1910 the Mutual Benefit Life Insurance Company paid upon an ordinary life policy issued upon a risk thirty-five years of age in 1859 an annual dividend of $20.62. The annual premium which the insured was paying was $27.50 making the net cost to the insured for the year $6.88. If the Mutual Benefit Life Insurance Company were granting the disability clause on such a risk, the question of dividends might well be of more concern to the policyholder than the disability benefit itself. It is clearly apparent that the instance given is an unusual one but it was chosen in order to bring out the extreme significance of this consideration. The greater portion of disability by far occurs at an advanced age because of disease or general age disability and there are many policies with an initial annual premium of $20 to $25 on which dividends of six, eight and ten or more dollars are paid after the policies have been in force over twenty years. Will the company then be permitted to confiscate these dividends in case the insured becomes disabled? Eighty-seven companies make no mention of dividends and the failure of their contracts to make any provision constitutes a weakness and opens the way for misunderstandings in the future.

Any other procedure than that of granting dividends to the insured during the time while premiums are waived is unfair and should not be permitted by state insurance departments. The actuaries who have computed rates for the waiver of premium benefit have based their calculations on the assumption that the initial premium charged is to be waived. And they have demonstrated that the waiver of the entire premium does not require an unusually heavy extra premium. If that initial premium contains a sufficient margin for the company's safety and the company contracts to return the overcharge in the form of a dividend, then there is no justification for any plan whereby the company confiscates the overcharge after disability occurs. Four of the thirteen companies referring to dividends in their clauses explain that dividends are to be discontinued.

Only nine companies of the total 101 permitting waiver of premiums agree to pay dividends after the insured becomes disabled. The Columbus Mutual states that the policy becomes paid up for its full amount "participating in profits"; the policy of the Reliance Life "shall participate in any distribution of surplus"; the Mississippi Valley Life policy "will be credited with dividends in like manner as if the insured paid the premiums"; the policy of the Sun Life of Montreal "shall continue to participate in profits"; the Texas Life provides that "the policy will continue in full force towards maturity *sharing in the profits of the company among policies of its class*"; the contract of the North State Life is to continue in full force as a "paid-up participating policy for its value"; the Franklin Life stipulates that "waiver of premium payments shall have the effect of providing the same values and benefits as though premiums waived had been paid"; the waiver of premiums by the Home Life of New York, "shall not affect the right of the insured to any dividend or other benefit"; the Germania Life requires that dividends after disability "shall be paid in cash." Since the rate of mortality among disabled persons is so much greater than among active lives it is not equitable to the company, or to its other policyholders, to permit the disabled person to use his dividend to purchase a paid-up addition to the policy since this paid-up addition is computed on the American Experience table rate of mortality. The requirement of the Germania Life that dividends be paid *in cash* after disability is, therefore, one which might well be copied.

Dividends after Maturity of the Policy

Dividends on a policy after its maturity will not be computed on the same basis as before since two elements which are largely instrumental in producing the surplus fund from which dividends are paid, viz., savings in expense and lower mortality than expected, are in no way affected by a policy once matured. It is not surprising therefore to find that only one company makes any reference to the payment of dividends on deferred installments, this company stating that in case the twenty-installment benefit is chosen no dividends thereafter will be paid. There is, however, a further element, and a very important one, contributing toward the fund from which dividends are derived, viz., excess interest earned on the company's assets above the rate assumed in calculating premiums. Practically all the companies today compute premium rates on a three or three and one-half per cent interest basis, while many of them earn four, four and one-half or even five per cent on their assets. If a company has earned four and one-half per cent on its assets, but has computed its rates on a three and one-half per cent basis, this extra one per cent has been contributed by the assets as a whole, and a proportionate amount of it in justice belongs to every policyholder who has a claim on the company's funds. The disabled person, whose policy has matured for $1,000 payable in twenty installments is assumed by the company to have a policy worth $736 in cash, using a three and one-half per cent interest basis in discounting the installments. If the company, however, has earned four and one-half per cent interest the policyholder has a valid claim on the extra one per cent on that part of the $736 still in the company's possession and he is being treated unfairly if the company uses that income to swell the dividends on policies not yet matured. As stated above, the practice of so using surplus interest is followed by all the companies today in connection with their disability contracts in cases where "maturity" benefits are promised. The most equitable contracts issued today pay this excess interest where policies matured as death claims or endowments are being paid to beneficiaries in installments. This practice should be required of all companies and should be extended to cover installment payments under the disability contract.

Conclusion

The foregoing study makes possible a statement of some of the factors that should govern the future development of the disability clause. It has been found that the main motive back of its rapid rise to popular favor is commercial—a constant need of the solicitor for a new feature, a "talking point," and the keen appreciation on his part that the disability clause furnishes it. It has been further shown that the risk of total and permanent disability is a real and tangible one and that its occurrence may easily endanger the permanence of one's insurance. The idea of furnishing a real insurance feature has prompted the issue of the clause in many cases. These two motives, the altruistic and the commercial, have combined in bringing into existence a multitude of clauses, some good, some worthless, and some a curious admixture of the good and the bad. The business motive has led some companies to adopt clauses for no other purpose than to meet competition and the results are a disgrace to American life insurance; while other clauses show that they have had behind them the very best of careful and thoughtful consideration of the problems involved. It is plain that we have as yet no adequate knowledge of this risk in its relation to life insurance and we must permit the companies to go slowly in making the clause all that it should be, lest they make a mistake in the direction of too great liberality. Such a false step might only destroy the progress thus far made.

Three fundamental criticisms can be brought against the majority of disability clauses now issued: (1) the definition of disability; (2) the benefit given; and (3) restrictions under which the clause is granted. One way of meeting these criticisms is to frame a clause embodying in it all those features which are desired and which the present study has found to be safe. But this plan has inherent defects. In the first place, the same circumstances do not exist with every company—one writes participating insurance, another does not, the question of dividends being important in the first instance and never arising in the second; one company charges a premium for the clause, another pays the costs out of surplus, the first having need of a cancellation clause, the second not—and so in many instances the differences in method require a corresponding difference in the provisions of the disability clause. The

desirability, therefore, of attempting to frame a clause for general use is questionable. A second objection that faces the writer is the difficulty of obtaining a clause that would meet all the legal requirements of various companies. Equally satisfactory results can be obtained by laying down certain principles that should be embodied in every contract, and leaving it to the companies themselves to frame their clauses with these principles in mind.

The three points at which the disability clause is especially open to criticism are stated in the preceding paragraph. Disability is defined by all clauses today as inability to perform the duties of *any* occupation for gain or profit. It should be defined with reference to the particular occupation in which the insured is engaged. The life insurance companies should note that it is so defined today by some companies issuing accident and health policies. Benefits should furthermore be paid for disability *due to any cause whatever* where fraud is not present. The restrictions now existing in many clauses whereby only a limited number of cases of disability are covered should be completely done away with.

In the second place the benefit given after disability should in no case be less in money value than the insured would receive could he continue his insurance in force until death; and he should have the option of choosing between a "maturity" benefit and mere waiver of premiums. If the maturity benefit is not the full equivalent of the face value of the policy it should in no case be of less value than the waiver of premium benefit—and the latter will be equal to the present value of the sum insured computed on the basis of the mortality rate existing among disabled lives. Furthermore disability benefits should always be fully participating where the main policy is participating and dividends should be paid to the insured after as well as before disability.

The third feature which every clause should embody should grant disability benefits with the same restrictions as are made in case of the regular benefits under the policy. The many restrictions now found in clauses regarding the lapse of disability benefits through default in premiums, limitations on the time for making proofs or restrictions of benefits to the premium paying period, etc., have no right to continue. These remarks, of course, do not apply to such cases as fixing an upper age limit beyond which benefits will not be allowed, ample justification for which practice has been

found. It is evident, if these criticisms can be accepted, that there is yet opportunity for the life insurance companies to issue a disability clause which is a real "selling feature" and one which will meet competition because of its intrinsic merit as an insurance measure.

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